ORDER No. AD0009166C3

Service Manual

Portable Video CD Player

COMPACT disc DIGITAL VIDEO

MASH multi-stagenoiseshaping

SL-VP48 / SL-VP43 / SL-VP33

Traverse Deck: RAE0145Z Mechanism Series

Colours

(S).....Silver Type

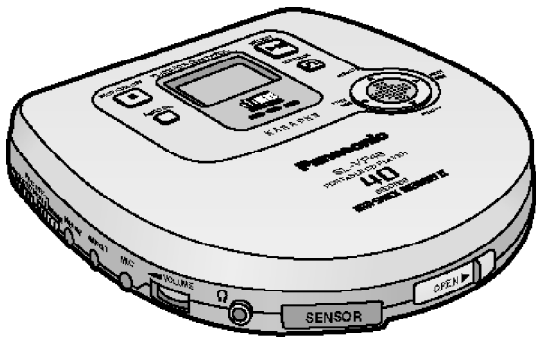
(N).....Gold Type

Areas

GK.....China.

GH.....Hong Kong.

GCS.....Asia, Latin America, Middle Near East, Africa and Oceania.



SPECIFICATIONS

● **Audio Section(Anti shock Off)**

No. of channels:	**2(left and right, stereo)**
Frequency response:	**20-20,000Hz (+0.5dB, -1.5dB)**
Output voltage:	**1.2V(10k Ω)**
S/N:	**more than 96 dB**
Wow and flutter:	**Below measurable limit**
DA converter:	**1 bit, MASH**
Headphone output level:	**max. 9mW+9mW/16 Ω (adjustable)**

● **Pick up Section**

Light souce:	**Semiconductor laser**
Wavelength:	**780nm**

● **Video Section**

Output format:	**NTSC/PAL**
Output voltage:	**1.0Vp-p(75 Ω)**

● **General**

Power supply: **DC 4.5V**

Power consumption:

● **SL-VP33**

Using AC adaptor: **4.8W**

● **SL-VP48/SL-VP43**

AC adaptotr;

Audio CDs(Anti-shock OFF/ON):	**4.8W/5.0W**
Video CDs:	**4.8W**

When rechargeing: **5.6W**

Play time

(When used in hold mode, at 25°C temperature and on flat and stable surface.)

● **SL-VP33**

2 Alkaline batteries;

Audio CDs:	**About 18 hours**
Video CD:	**About 3 hours**

Rechargeable batteries(P-3GAVT);

Audio CDs:	**About 9 hours**
Video CDs:	**About 2 hours**

● **SL-VP48**

2 Alkaline batteries;

Audio CDs(Anti-shock OFF/ON):	**About 18/20 hours**
Video CDs:	**About 3 hours**

Rechargeable batteries(P-3GAVT);

Audio CDs(Anti-shock OFF/ON):	**About 9/10 hours**
Video CDs:	**About 2 hours**

● **SL-VP43**

2 Alkaline batteries;	
Audio CDs(Anti-shock OFF/ON):	**About 18/19 hours**
Video CDs:	**About 3 hours**
Rechargeable batteries(P-3GAVT);	
Audio CDs(Anti-shock OFF/ON):	**About 9/9.5 hours**
Video CDs:	**About 2 hours**

The play time may be less depending on the operating condetions.

Recharging time:	**About 3 hours**
Dimensions(WxHxD):	**128x29.3x135mm**
Mass:	**271g(with batteries)**
	228g(without batteries)
Operational temperature range:	**0°C-40°C**
Recharging temperature range:	**5°C-40°C**

Note:
Specifications are subject to change without notice. / Mass and dimensions are approximate. / These specifications were measured using the AC adaptor.

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Panasonic®

1. Accessories

- Stereo earphones.....1 pc.
(RFEV334P-KS)
- Remote control transmitter.....1 pc.
(RAK-SL974WK)
- Connection cable.....1 pc.
(RJL3X001X15)
- Batteries for remote control transmitter.....1 pc.
(R6/LR6, AA, UM-3)
Note: There are available on sales route.

For GK area

- AC adaptor.....1 pc.

(RFEA413T-1W)

For GCS area

- AC adaptor.....1 pc.

(RFEA413Z-W)

For GH area

- AC adaptor.....1 pc.

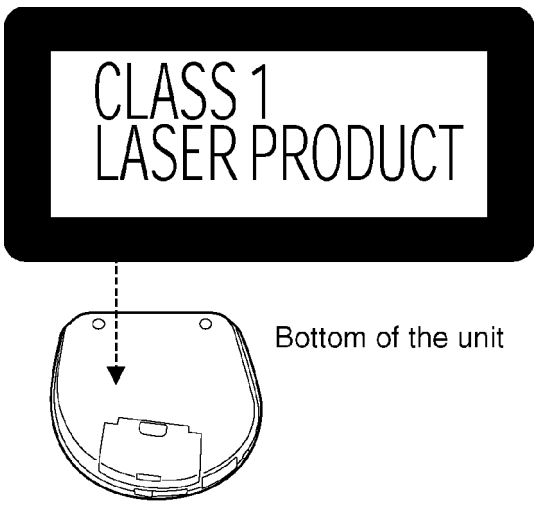
(RFEA413H-W)

2. Precaution of Laser Diode

Caution:

This product utilizes a laser diode with the unit turned "on", invisible laser rediation is emitted from the pickup lens. / Wave length: 780nm / Maximum output radiation power from pickup: 100 μW/VDE / Laserradiation from the pickup lens is safety level, but be sure the followings:

1. **Do not disassemble the optical pickup unit, since radiation from exposed laser diode is dangerous.**
2. **Do not adjust the variable resistor on the pickup unit. It was already adjusted.**
3. **Do not look at the focus lens using optical instruments.**
4. **Recommend not to look at pickup lens for a long time.**



RQLS0196

CLASS 1
LASER PRODUCT
ADVARSEL: USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION, UNDGÅ UDSÆTTELSE FOR STRÅLING.
VORSICHT - Unsichtbare Laserstrahlung, wenn Abdeckung geöffnet und Sicherheitsverriegelung überbrückt. Nicht dem Strahl aussetzen.
DANGER - Invisible laser radiation when open and interlock defeated. AVOID DIRECT EXPOSURE TO BEAM.
VARO! Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymätön lasersäteilylle. Älä katso säteesen.
VARNING! Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad. Betrakta ej strålen.
ADVERSEL! Usynlig laserstråling når deksel åpnes og sikkerhedslås brytes. Unngå eksponering for strålen.
A pleine puissance, l'écoute prolongée du baladeur peut endommager l'oreille de l'utilisateur.
RQLS0196

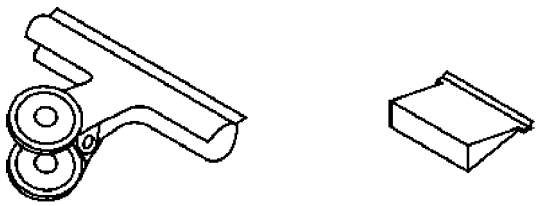
3. Handling Precautions for Traverse Deck

The laser diode in the traverse deck (optical pickup) may break down due to potential difference caused by static electricity of clothes or human body.
So, be careful of electrostatic breakdown during repair of the traverse deck (optical pickup).

3.1. Handling the traverse deck (optical pickup)

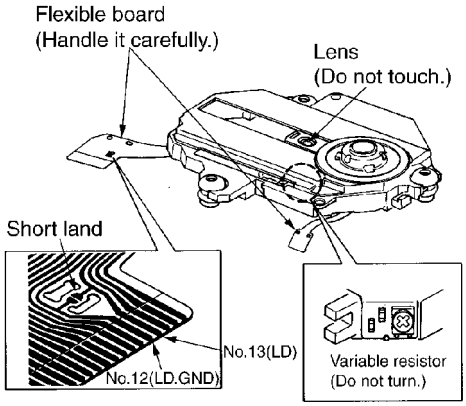
1. **The traverse deck (optical pickup) is an extremely high-precision construction and must not be subjected to impact, excessive vibration, or other types of rough handling.**
2. **In order to prevent static electricity damage to the laser diode, use a short pin or similar tool to short the optical pickup's flexible circuit boards after they have been disconnected from the main circuit board. (as shown in Fig. 1)**
3. **Handle the flexible circuit boards with care; excessive force could cause them to be broken.**
4. **Do not turn the pre-set variable resistor (for adjustment of the laser power); it has been adjusted at the factory. (as shown in Fig. 2)**

Fig. 1



Clip or short-pin

Fig. 2



3.2. Grounding for electrostatic breakdown prevention

1. Human body grounding

Use the anti-static wrist strap to discharge the static electricity from your body. (as shown in Fig. 3)

2. Work table grounding

Put a conductive material (sheet) or steel sheet on the area where the traverse deck (optical pickup) is placed, and ground the sheet. (as shown in Fig. 4)

Caution

The static electricity of your clothes will not be grounded through the wrist strap.

So, take care not to let your clothes touch the traverse deck (optical pickup).

Fig. 3

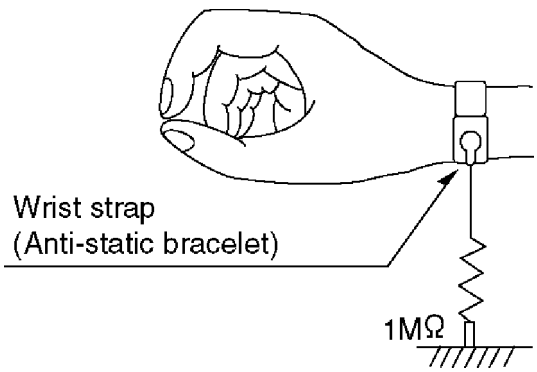
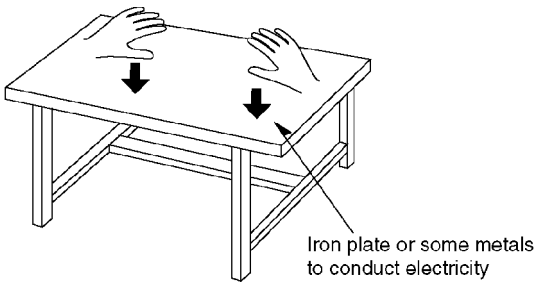


Fig. 4



4. Operating Instructions

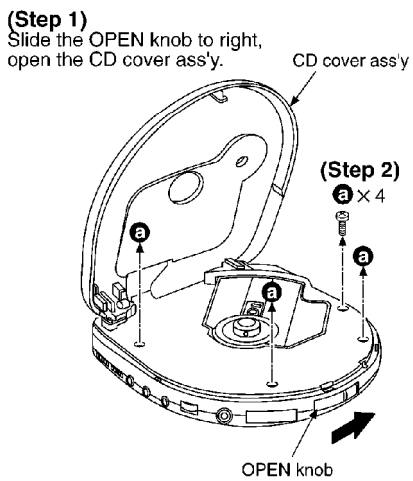
5. Operation Checks and Component Replacement Procedures

- This section describes procedures for checking the operation of the major printed circuit boards and replacing the main components.

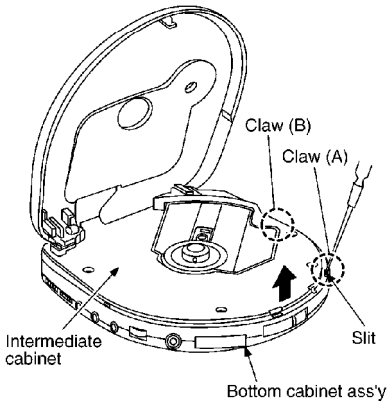
- For reassembly after operation checks or replacement, reverse the respective procedures. Special reassembly procedures are described only when required.

5.1. Checking for the video P.C.B.

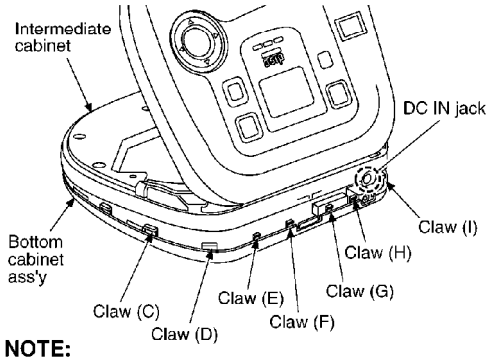
5.1.1. Checking for the video P.C.B. / (A side)



(Step 3)
Insert the minus screwdriver into the slit of intermediate cabinet, and then release the claws (A) and (B) to remove the intermediate cabinet in the direction of arrow.

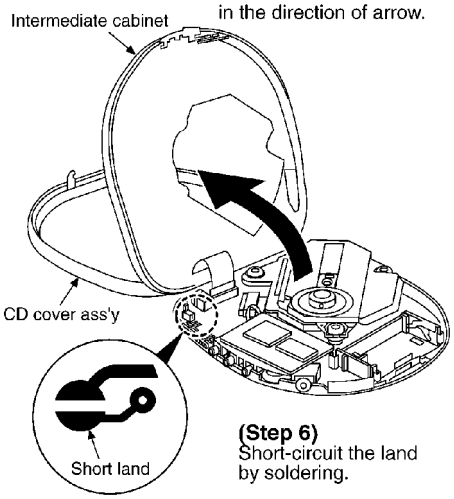


(Step 4)
Open the clearance between the bottom cabinet ass'y and intermediate cabinet, and then release the claw (C) to claw (I) in turn.

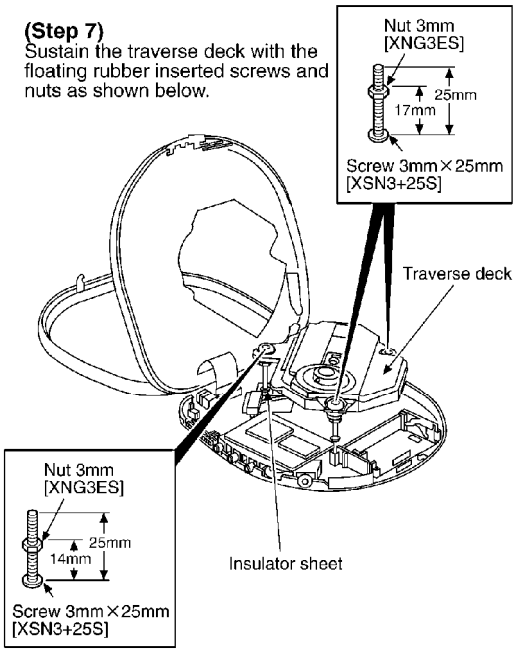


NOTE:
Take care not to break the DC IN Jack provided with intermediate cabinet.

(Step 5)
Move the intermediate cabinet in the direction of arrow.

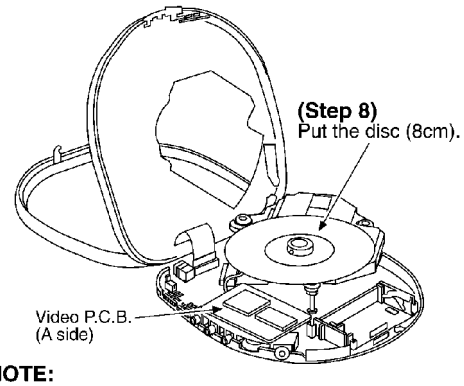


(Step 6)
Short-circuit the land by soldering.



NOTE:
- The tip of screw must not protrude above the floating rubber.
- To keep insulation, place the insulator sheet (paper etc.) between the P.C.B. and the head of screws.

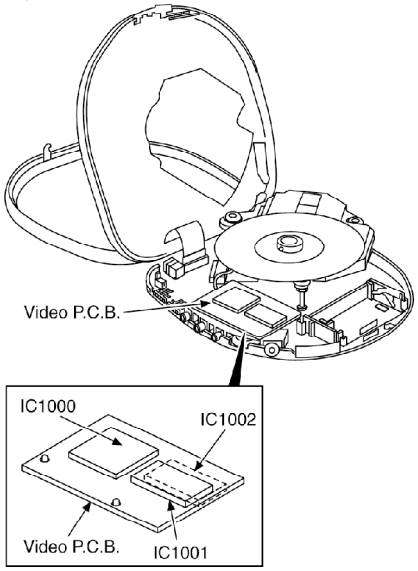
- Check the video P.C.B. (A side) as shown below.

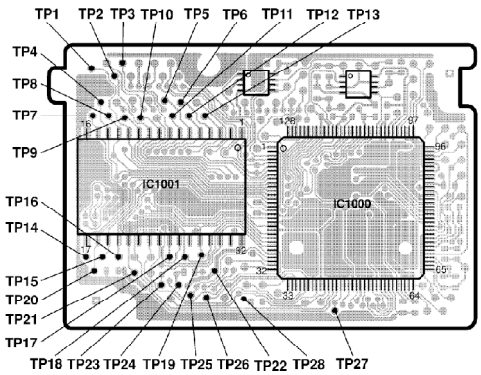


NOTE:
After checking, unsolder the short land to open circuit.

5.1.2. Checking for the video P.C.B. / (B side)

· When checking the IC1002 on the of video P.C.B. (B side), it can be measured with test point on the video P.C.B. (A side).





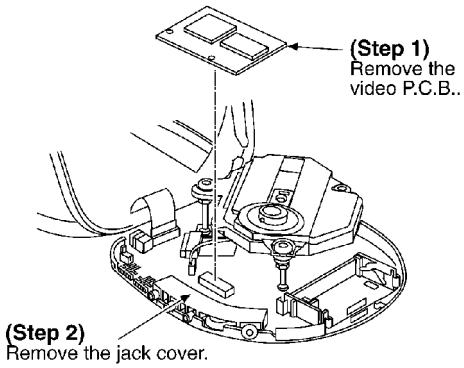
IC1002 (PIN No.)	Test Point No.	IC1002 (PIN No.)	Test Point No.	IC1002 (PIN No.)	Test Point No.	IC1002 (PIN No.)	Test Point No.
1	TP22	13	GND	23	GND	35	TP17
2	TP8	14	GND	24	TP3	36	TP6
3	TP4	15	TP26	25	TP11	37	TP19
4	TP7	16	TP28	26	TP5	38	TP18
5	TP14	17	GND	27	TP12	39	GND
6	TP22	18	TP1	28	TP27	40	TP13
7	TP20	19	TP9	29	TP28	41	※
8	TP15	20	TP2	30	TP24	42	TP23
9	TP16	21	TP10	31	TP24	43	TP25
10	TP21	22	TP22	32	GND	44	GND

(The waveform are noted on the schematic diagram.)

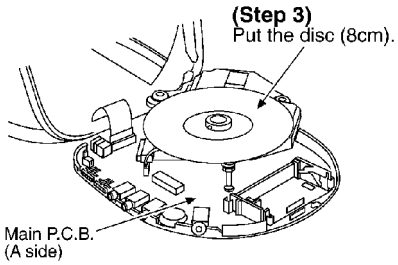
5.2. Checking for the main P.C.B.

5.2.1. Checking for the main P.C.B. / (A side)

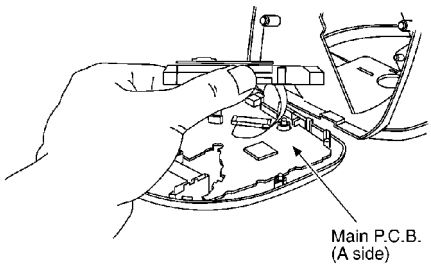
- Follow the (Step 1) - (Step 7) of item 5.1.1.



- Check the main P.C.B. (A side) as shown below.

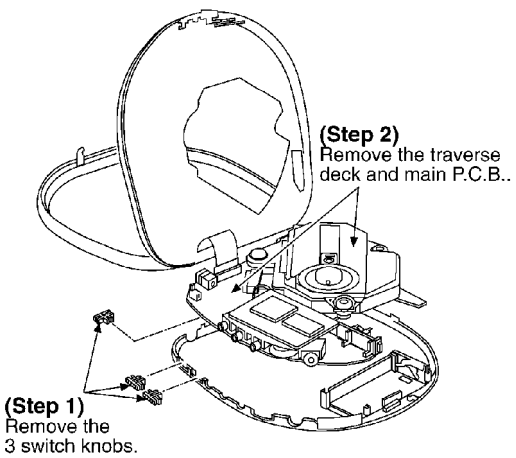


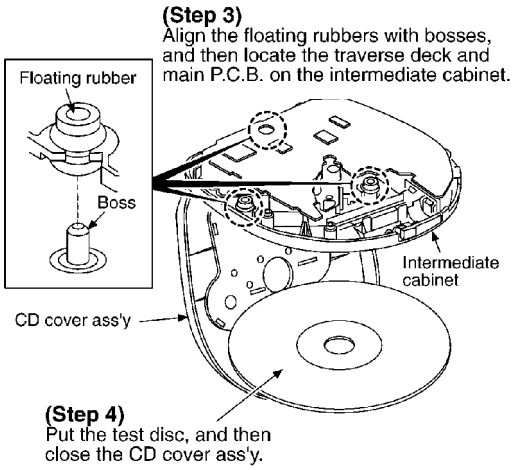
NOTE:
Check the main P.C.B. under the traverse deck with holding the traverse deck manually as illustrated below.



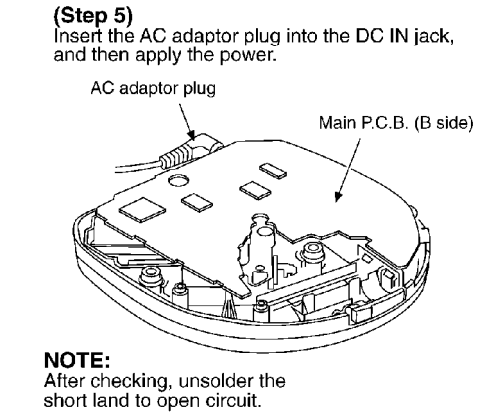
5.2.2. Checking for the main P.C.B. / (B side)

- Follow the (Step 1) - (Step 6) of item 5.1.1.



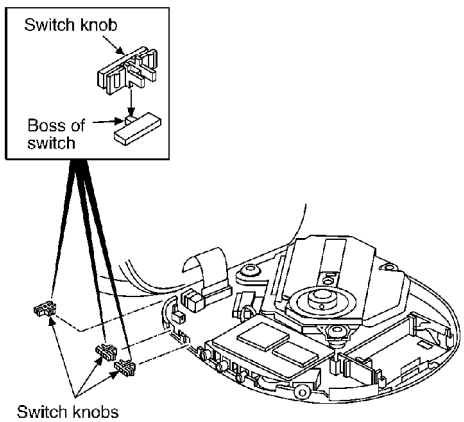

(Step 3)
Align the floating rubbers with bosses, and then locate the traverse deck and main P.C.B. on the intermediate cabinet.
Floating rubber
Boss
Intermediate cabinet
CD cover ass'y
(Step 4)
Put the test disc, and then close the CD cover ass'y.

- Check the main P.C.B. (B side) as shown below.


(Step 5)
Insert the AC adaptor plug into the DC IN jack, and then apply the power.
AC adaptor plug
Main P.C.B. (B side)
NOTE:
After checking, unsolder the short land to open circuit.

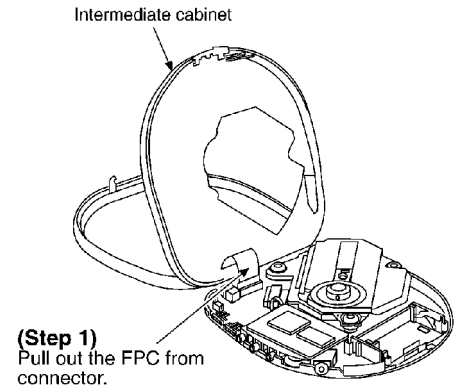
Notice for installation of switch knobs

- Make sure the bosses of switch are fit in the switch knobs.

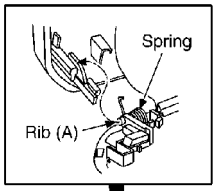


5.3. Replacement for the CD cover ass'y, LCD and JOG knob

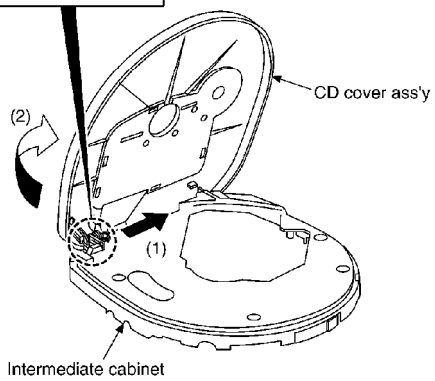
- Follow the (Step 1) - (Step 5) of item 5.1.1.



(Step 1)
Pull out the FPC from connector.



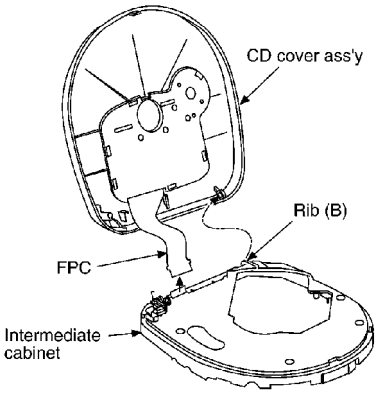
(Step 2)
Bend the intermediate cabinet in the direction of arrow (1), and then release the CD cover ass'y from the rib (A).



NOTE:
Be careful not to lose the spring.

(Step 3)
Remove the CD cover ass'y from the rib (B).

(Step 4)
Draw the FPC from the intermediate cabinet.
(Take care not to damage the FPC.)

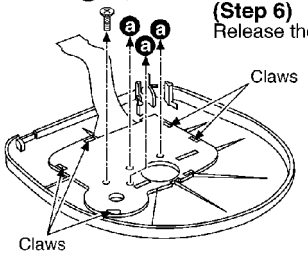


(Step 5)

ⓐ × 4

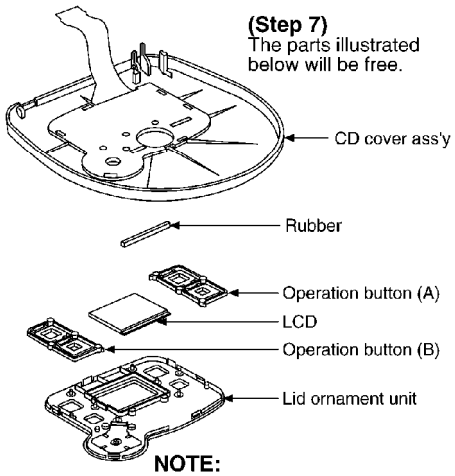
(Step 6)

Release the 5 claws.



(Step 7)

The parts illustrated below will be free.

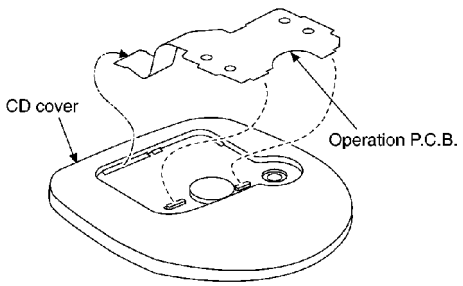


NOTE:

Be careful not to be applied the dust or smudge on the surface rubber.

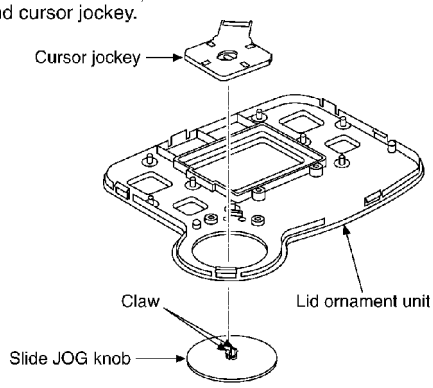
(Step 8)

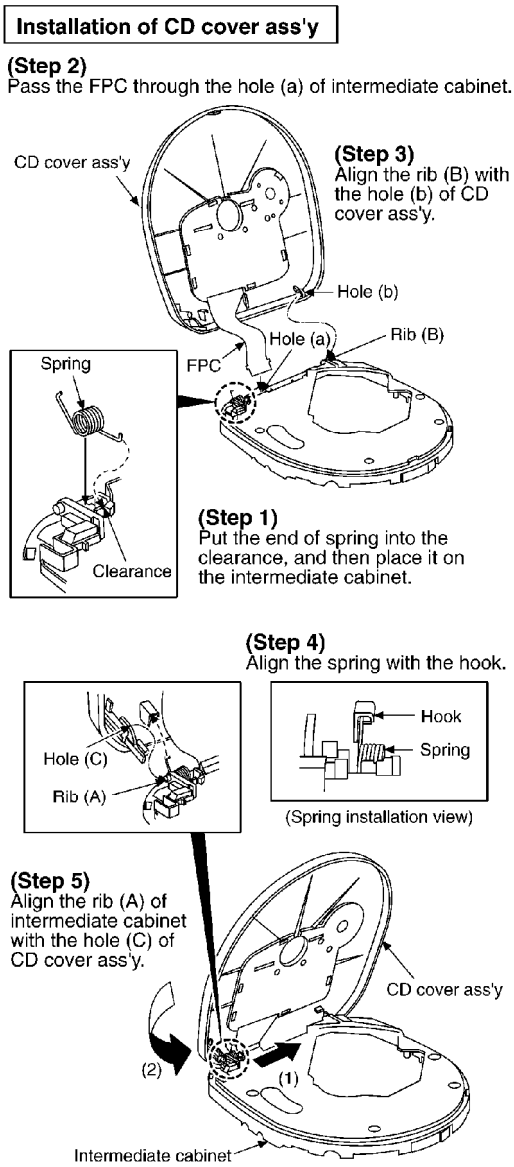
Remove the operation P.C.B. from CD cover.



(Step 9)

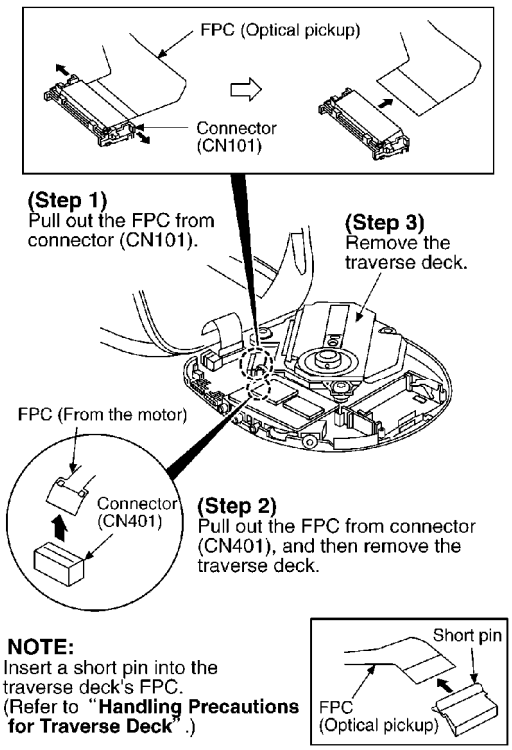
Release the claws, and then remove the slide JOG knob and cursor jockey.



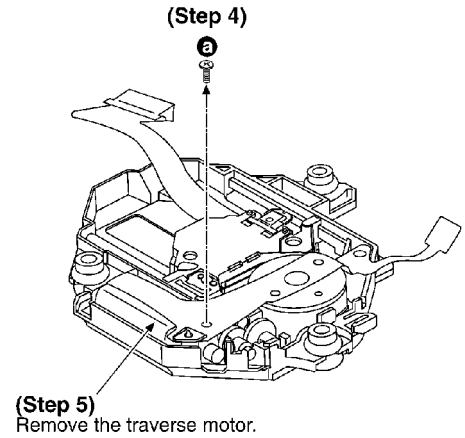


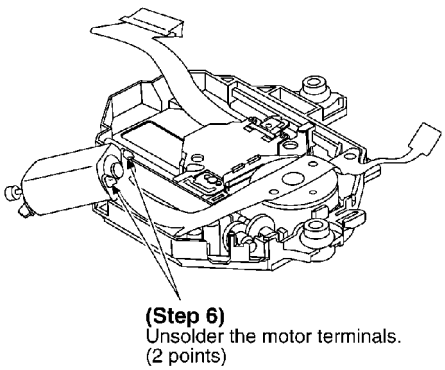
5.4. Replacement for the traverse motor

- Follow the (Step 1) - (Step 5) of item 5.1.1.



NOTE:
Insert a short pin into the traverse deck's FPC.
(Refer to "**Handling Precautions for Traverse Deck**".)

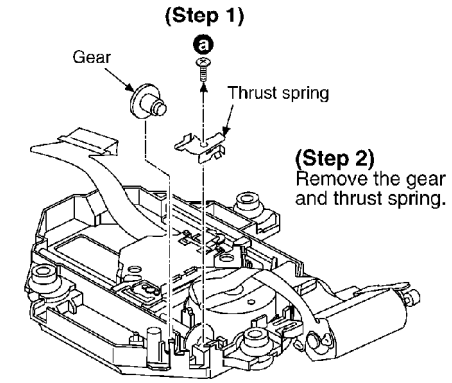


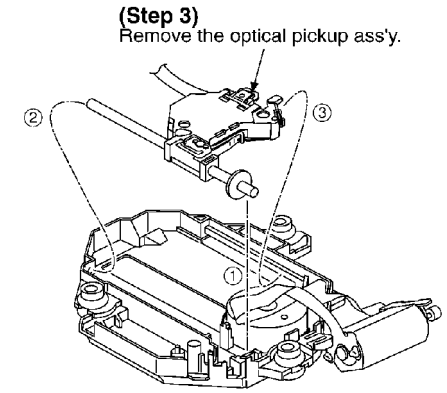


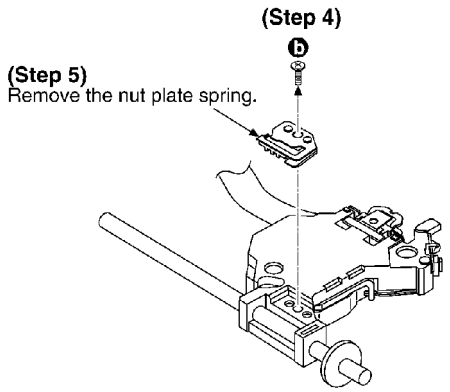
5.5. Replacement for the optical pickup

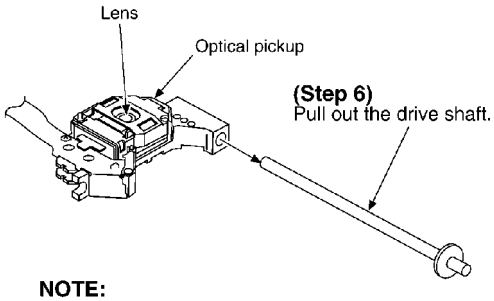
- Follow the (Step 1) - (Step 5) of item 5.1.1.

- Follow the (Step 1) - (Step 5) of item 5.4.









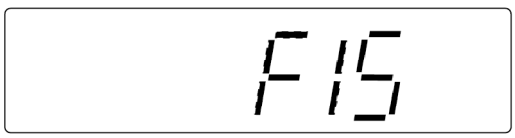
NOTE:
1. Use care to prevent damage the optical pickup, due to the precision construction.
2. Do not apply the grease on the lens of optical pickup.
3. Do not touch the lens of the optical pickup.

6. Display of Self-Diagnostic Function

This unit (SL-VP33/VP43/VP48) has self-diagnostic function, it may display below-mentioned on the LCD of this unit.

- The substance of self-diagnostic display.

LCD display

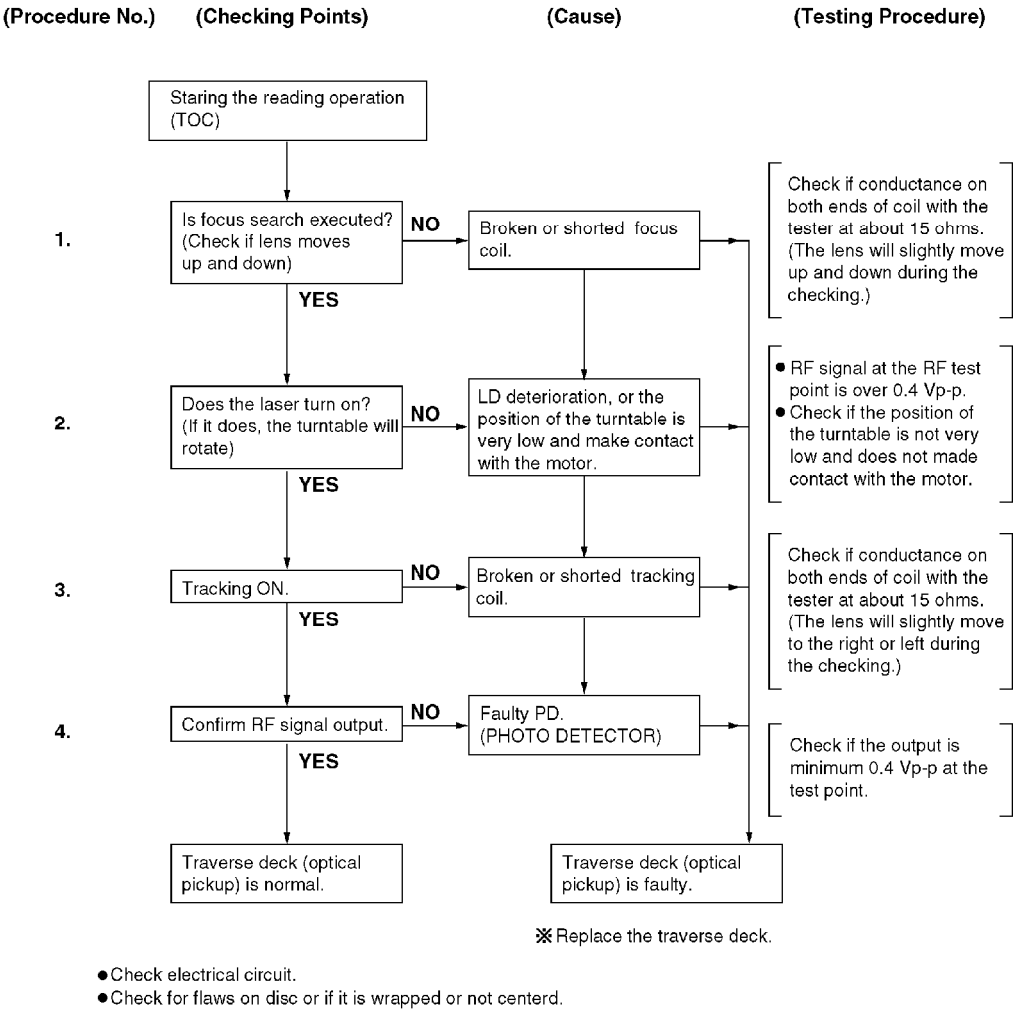


(Press PLAY and STOP button. After 15 seconds, it is displayed for 2 seconds.)

In the case of this display, it may be causing for abnormally movements of traverse deck, touching failure of REST det. SW. and coming off or cutting off the flexible P.C.B.. It is necessary for confirmation or repair and replacement each parts.

7. Checking the Operation Problems on the Traverse Deck (Optical Pickup)

Make sure to follow the procedures below to check the operation problems of the traverse deck (optical pickup) before replacing it. Replace the traverse deck only after the problem is identified.


(Procedure No.)
(Checking Points)
(Cause)
(Testing Procedure)
Staring the reading operation (TOC)
1.
Is focus search executed? (Check if lens moves up and down)
NO
Broken or shorted focus coil.
YES
Check if conductance on both ends of coil with the tester at about 15 ohms. (The lens will slightly move up and down during the checking.)
2.
Does the laser turn on? (If it does, the turntable will rotate)
NO
LD deterioration, or the position of the turntable is very low and make contact with the motor.
YES
● RF signal at the RF test point is over 0.4 Vp-p.
● Check if the position of the turntable is not very low and does not made contact with the motor.
3.
Tracking ON.
NO
Broken or shorted tracking coil.
YES
Check if conductance on both ends of coil with the tester at about 15 ohms. (The lens will slightly move to the right or left during the checking.)
4.
Confirm RF signal output.
NO
Faulty PD. (PHOTO DETECTOR)
YES
Check if the output is minimum 0.4 Vp-p at the test point.
Traverse deck (optical pickup) is normal.
Traverse deck (optical pickup) is faulty.
※Replace the traverse deck.
● Check electrical circuit.
● Check for flaws on disc or if it is wrapped or not centerd.

● **Check the operations described below on the traverse deck after replacing it.**

***Checking Skip Search**

1. Play an ordinary musical program disc.

2. Press the skip button to check for normal skip search operation (in both the forward and reverse directions).

***Checking Manual Search**

1. Play an ordinary musical program disc.

2. Press the manual search button to check for smooth manual search operations at either low or high speed (in both the forward and reverse directions).

***Checking Playability**

1. Play the 0.7 mm black dot and the 0.7 mm wedge on the playability test disc (SZZP1054C) and verify that no sound skip or noise

occurs.

2. Play the middle tracks of the uneven test disc (SZZP1056C) and verify that no sound skip or noise occurs.

8. Automatic Adjustment Results Display Function (Self-check Function)

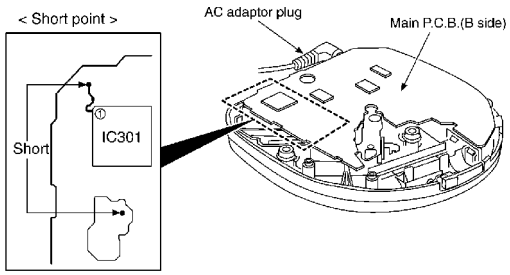
On this unit (SL-VP33/VP43/VP48), each automatic adjustment results are displayed on the LCD. This function is convenient to check or identify which automatic adjustment circuit is incorrect. The followings are the contentsof the automatic adjustment result displays (self-check function).

8.1. How to display automatic adjustment results

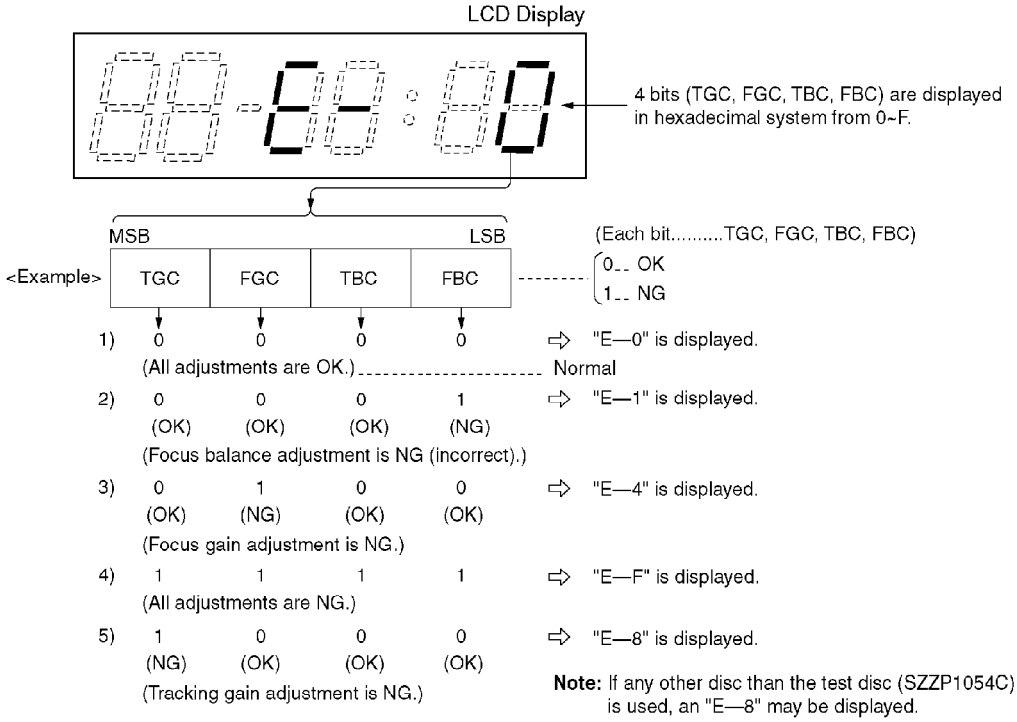
1. Relaese the bottom cabinet. (As for the method of disassembly, refer to “5.1.1 Chacking for the video P.C.B.”.)
2. Load the test disc (SZZP1054C).
3. Place it, keeping the disc cover side down, on the base.
4. Make a short-circuit between IC301 pin No.1 and GND. (as shown in Fig. 5)
5. Insert the AC adaptor plug into the DC IN jack, and then apply the power.
6. Press the ▶II(SELECT) key.
7. After reading TOC, break the short-circuit.
8. Press the ■(STOP/OPR OFF) key.
9. An automatic adjustment result is displayed on the LCD.

Note:
Remove the solders from the leads after adjustment.

Fig. 5



8.2. Display of automatic adjustment results (self-check function)


LCD Display
4 bits (TGC, FGC, TBC, FBC) are displayed in hexadecimal system from 0~F.
MSB
LSB
(Each bit.....TGC, FGC, TBC, FBC)
0 OK
1 NG
<Example>
TGC
FGC
TBC
FBC
1) 0 0 0 0 "E—0" is displayed.
(All adjustments are OK.) Normal
2) 0 0 0 1 "E—1" is displayed.
(OK) (OK) (OK) (NG)
(Focus balance adjustment is NG (incorrect).)
3) 0 1 0 0 "E—4" is displayed.
(OK) (NG) (OK) (OK)
(Focus gain adjustment is NG.)
4) 1 1 1 1 "E—F" is displayed.
(All adjustments are NG.)
5) 1 0 0 0 "E—8" is displayed.
(NG) (OK) (OK) (OK)
(Tracking gain adjustment is NG.)
Note: If any other disc than the test disc (SZZP1054C) is used, an "E—8" may be displayed.

<Example>

Follow the below steps when “E-1” is displayed.

(Cause: Focus balance (FBC) is set beyond the limit.)

- Check if

1. **the waveform or voltage of the focus servo circuit is correct. (check the waveform or voltage.)**
2. **the optical pickup returns to the normal state by exchanging the traverse deck.**

Follow the below steps when “E-4” is displayed.

(Cause: Focus gain (FGC) is set beyond the limit.)

- Check if

1. **the waveform or voltage of the focus servo circuit is correct. (check the waveform or voltage.)**
2. **the focus coil of the optical pickup is correct (around 15 ohms).**

3. the optical pickup returns to the normal state by exchanging the traverse deck.

Follow the below steps when "E-F" is displayed.
(Cause: All adjustments (TGC, FGC, TBC, FBC) are set beyond the limit.)

- Check if

1. the optical pickup returns to the normal state by exchanging the traverse deck.
2. the waveform or voltage of the servo IC's are correct. (check the waveform or voltage.)

Note:
It is not always necessary to exchange the traverse deck when an error message is displayed. / Be sure to check if the circuit is defective or not before exchanging the traverse deck.

Note:
If any other disc than the test disc (SZZP1054C) is used, an error message may be displayed. This is not a malfunction.

9. Outline of 40-Second Sound Keeper Technique Used for Prevention of Sound from Skipping

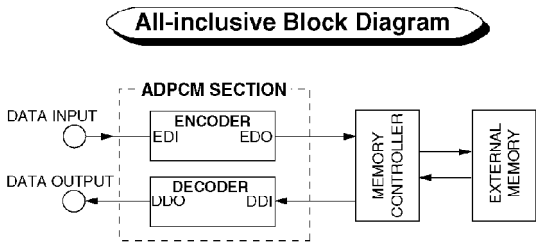
9.1. Conventional Shockproofing Technique

Input information read out of the CD at double speed is demodulated, stored in the memory, and while sound-marking signal is supplied at normal speed from the memory to the D/A converter, the residual data si accumulated in then mi\emory. / Ifreaccess to the break point is accomplished before the memory becomes empty, apparent playback sound is entirely kept free from breaking even when information pauses due to viration, etc. It was necessary to use the 16M bit memory for securing theaccumulation time of about 40 seconds.

9.2. Compression-shockproofing [Outline]

Fig. 6 is a blck diagram showing the compression-shockproofing mechanism, the difference of which from the conventional mechanism is as follows: Input information read out at double speed undergoesdata compression (16 bits ~ 4 bits) by the encorder in the ADPCM (Adaptive Difference PCM) and stored in the external memory; the stored memory information undergoes data elongation (4 bits ~ 16 bits) by the decoder in the ADPCM and supplied at normalspeed to the D/A converter. / The data compression technique has conduced to reduction of required memory capacity from 16M bits to 4M bits for securing the accumulation time equivalent to the conventional.

Fig. 6



10. Measurements and Adjustments

Warning:
This product uses a laser diode. Refer to caution statements.

10.1. Measuring instruments and special tools

Test discs

1. **Playability test disc (SZZP1054C)**
2. **Uneven test disc (SZZP1056C)**
3. **Musical program disc (ordinary)**
4. **DC voltmeter**
5. **Lead wire (for test points)**

10.2. Test short land

Short-circuit the lands of the laser ON/OFF switch (S201) by soldering them. It turns "ON" position. (Refer to below Fig. 7 or printed circuit board and wiring connectiondiagram for short land location.)

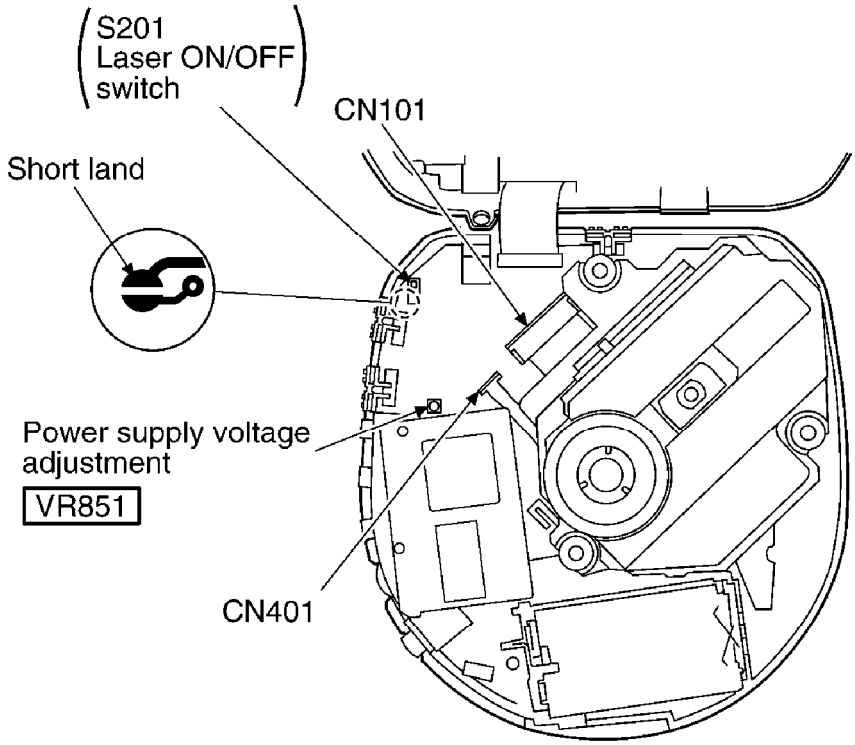
Note:
Remove the solders from the lands after adjustment.

10.3. Adjustment point

Notes:

1. **Please refer to the printed circuit board and wiring connection diagram for test point locations.**
2. **Take care to connect CN101 (as shown in Fig. 7)**

Fig. 7



10.4. Adjustment procedure

10.4.1. Power supply voltage adjustment

1. Connect the DC voltmeter to MVcc and GND on the P.C.B.
2. Connect the AC adaptor cord to the DC (IN) port and move the PLAY switch to the ON position. Anti-shock is set in OFF position. (Use a new dry cell battery or a rechargeable battery that is full charged.)
3. Insert the test disc, and switch the player power ON.
4. Adjust VR851 on the P.C.B. at 3.20 ± 0.02V , as shown in .

10.4.2. Check of play operation

***Checking Skip Search**

1. Play an ordinary musical program disc.
2. Press the skip button to check for normal skip search operation (in both the forward and backward directions).

***Checking Manual Search**

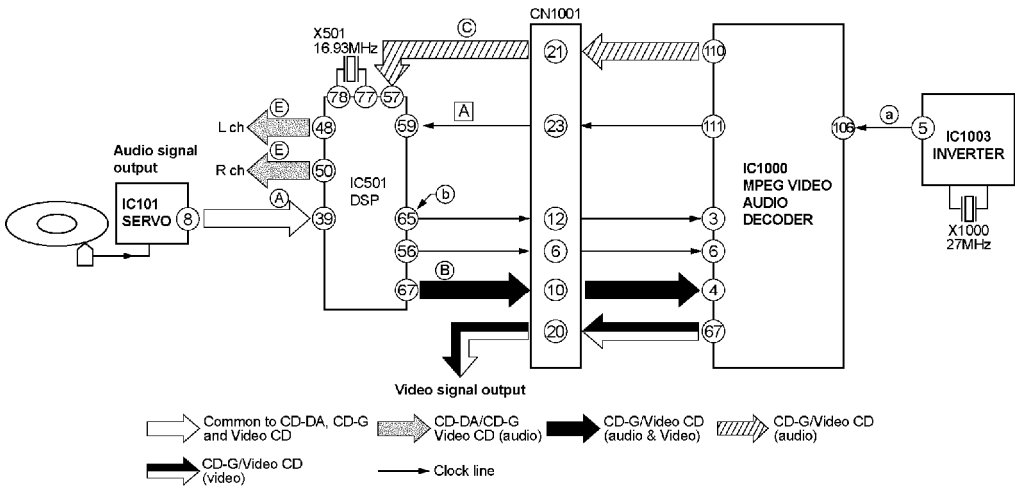
1. Play an ordinary musical program disc.
2. Press the manual search button to check for smooth manual search operations at either low or high speed (in both the forward and backward directions).

*Checking Playability

1. Play the 0.7mm black dot and the 0.7mm wedge on the playability test disc (SZZP1054C) and verify that no sound skip or noise occurs.
2. Play the middle tracks of the uneven test disc (SZZP1056C) and verify that no sound skip or noise occurs.

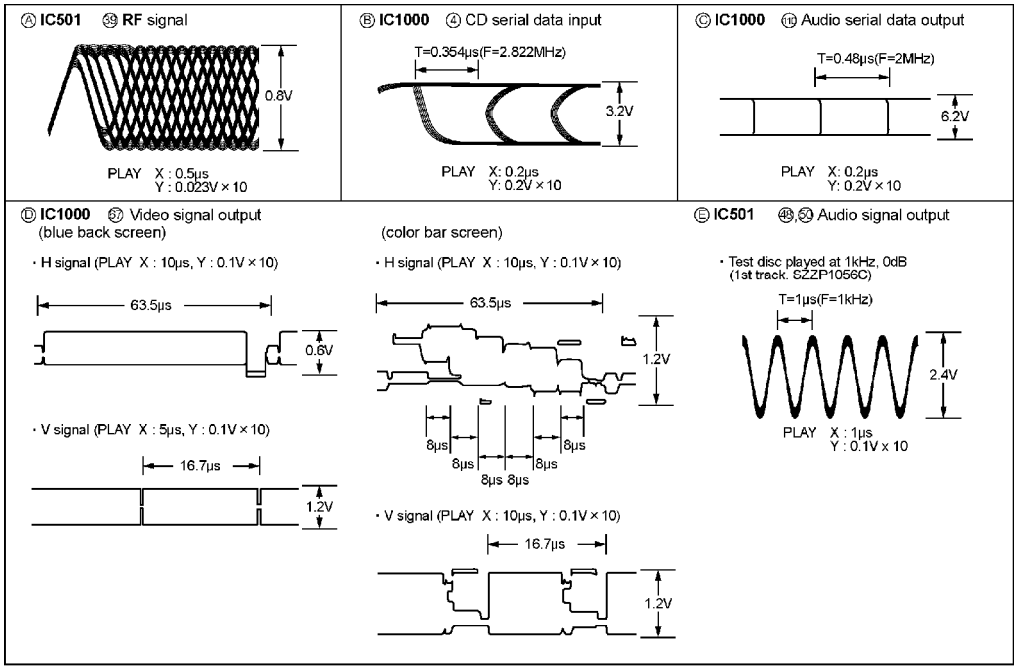
11. Troubleshooting Guide

11.1. Circuit diagram

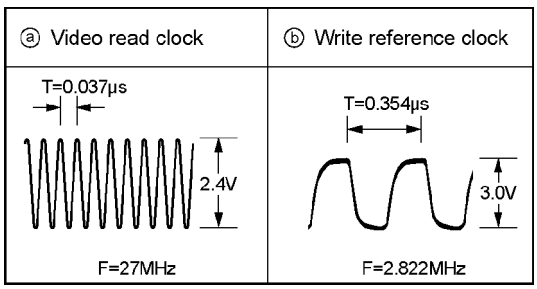


11.2. Data signal line waveforms

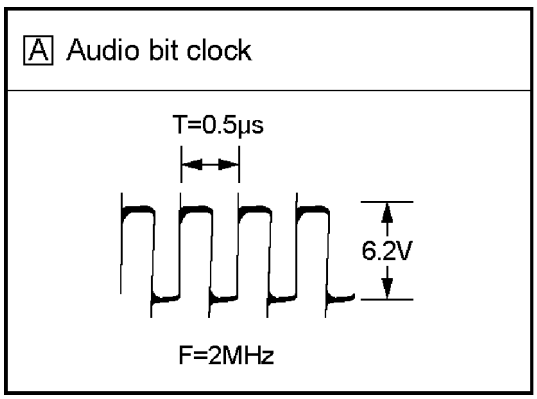
Note:
Use the PVCDD_K06 video CD test disc (menu playback feature is available on version 2.0). For color bar display, playback the 1st track when the menu playback feature is used, ot the 3rd track when the feature is not used.



11.3. Master clock system waveform



11.4. Audio data clock system waveform

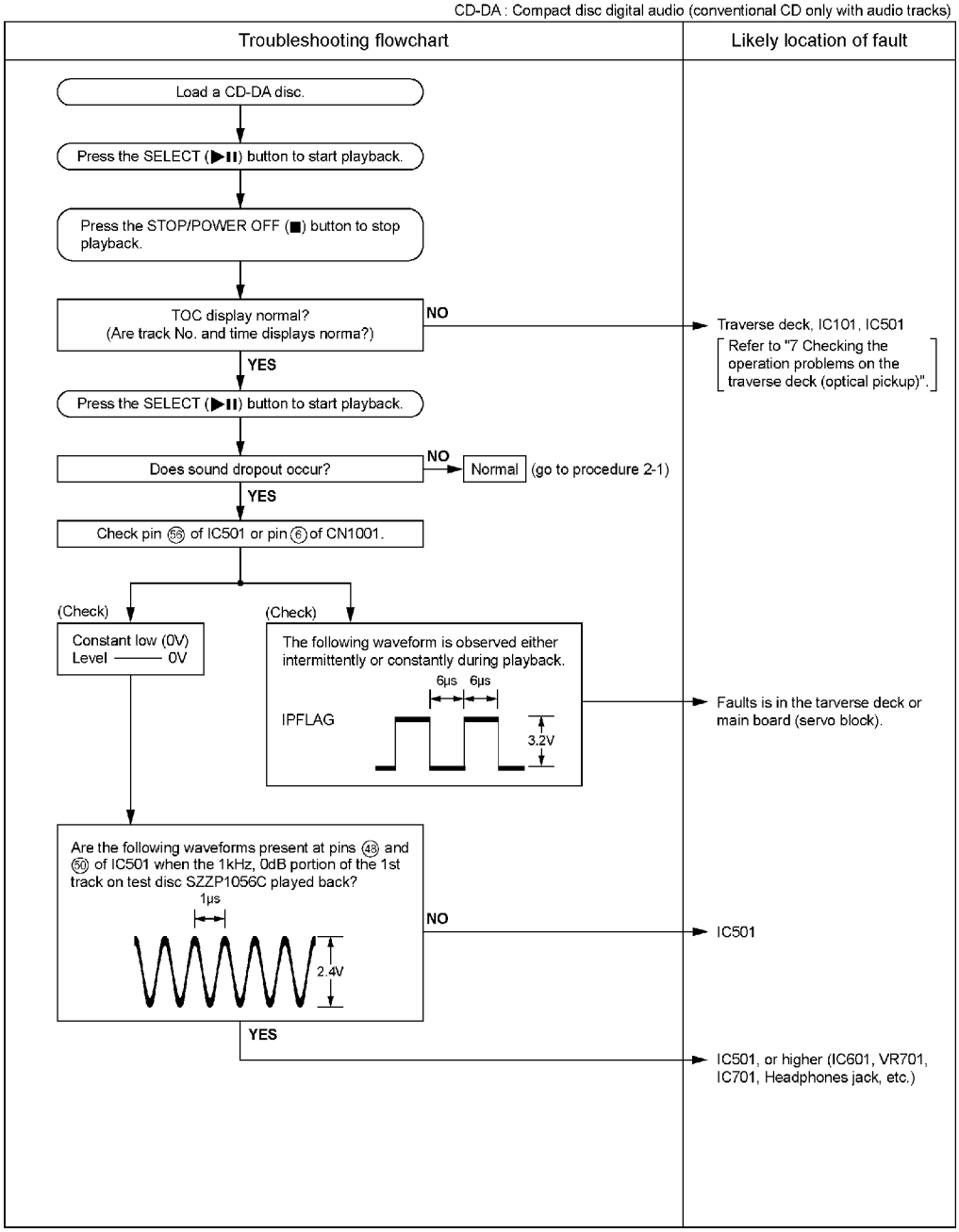


11.5. Diagnostic Procedures by Symptom

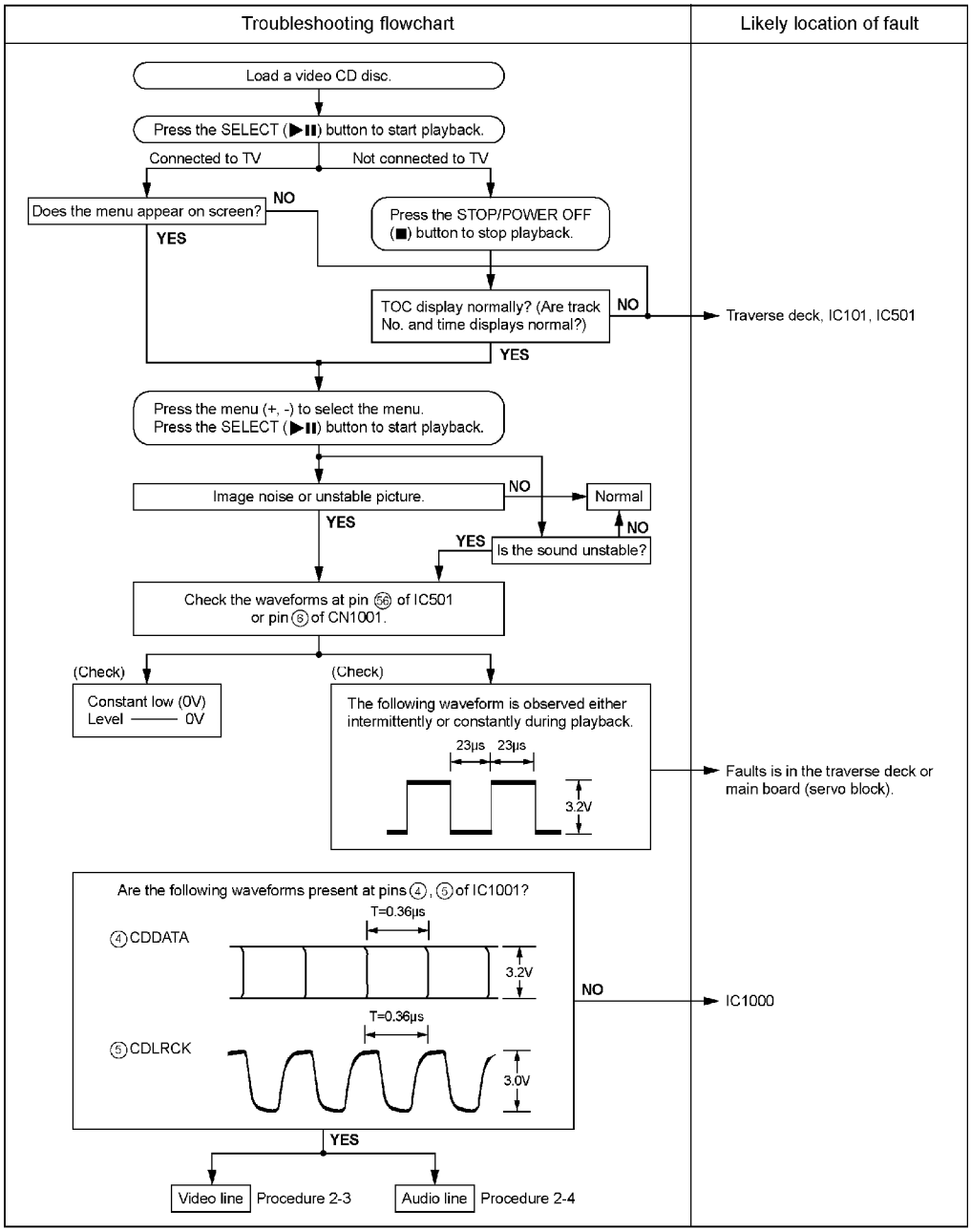
Symptom		Likely Location Fault
CD-DA	Video-CD	
TOC NG	TOC NG (both audio and video are NG.) Blue back display.	For TOC NG, fault in the CD-DA circuit. IC501, IC11, or traverse system.
Turntable fails to rotate.	Fails to rotate.	Traverse system, focus servo system (IC11), supply line, clock line system co (IC301).
Turntable rotates.	Rotates.	Traverse system, tracking servo syste servo system/traverse servo system (I IC501, IC11).
Audio normal	Audio normal, Video NG.	IC1000
Audio normal	No sound, Video NG.	IC1000
TOC OK, counter OK, but no sound.	TOC OK, counter OK, but no sound and video NG.	CD disc other than DV “Karaoke” soft, CD and CD-DA.

Troubleshooting Procedure 1	CD-DA	No sound

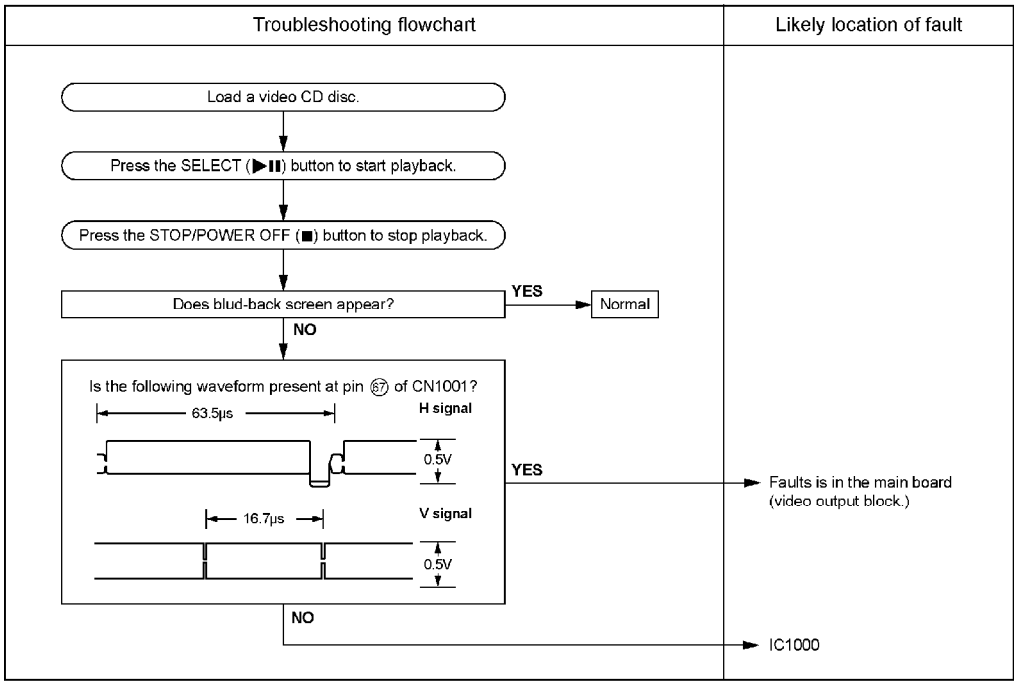
CD-DA : Compact disc digital audio (conventional CD only with audio tracks)


Troubleshooting flowchart
Likely location of fault
Load a CD-DA disc.
Press the SELECT (▶II) button to start playback.
Press the STOP/POWER OFF (■) button to stop playback.
TOC display normal?
(Are track No. and time displays norma?)
NO
Traverse deck, IC101, IC501
Refer to "7 Checking the operation problems on the traverse deck (optical pickup)".
YES
Press the SELECT (▶II) button to start playback.
Does sound dropout occur?
NO
Normal
(go to procedure 2-1)
YES
Check pin 56 of IC501 or pin 6 of CN1001.
(Check)
Constant low (0V)
Level ——— 0V
(Check)
The following waveform is observed either intermittently or constantly during playback.
6µs
6µs
IPFLAG
3.2V
Faults is in the tarverse deck or main board (servo block).
Are the following waveforms present at pins 48 and 50 of IC501 when the 1kHz, 0dB portion of the 1st track on test disc SZZP1056C played back?
1µs
2.4V
NO
IC501
YES
IC501, or higher (IC601, VR701, IC701, Headphones jack, etc.)

Troubleshooting Procedure 2-1	Video CD	No picture or No sound

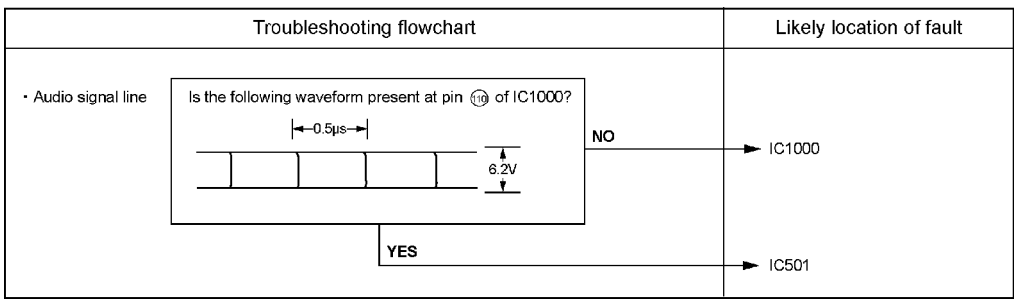


Troubleshooting Procedure 2-2	Video CD blue back	No blue back



Troubleshooting Procedure 2-3	Video portion of video CD	No picture	- - - - - - - - - - Likely location of fault : IC1000

Troubleshooting Procedure 2-4	Audio portion of video CD	No sound



12. Schematic Diagram Note

12.1. Type Illustration of IC's, Transistors and Diodes

12.2. Schematic Diagram Notes

Notes:

● S201 : Laser ON/OFF switch in “OFF” position. / (It turns “ON” with disc holder closed.)

● S202 : Rest detector in “OFF” position. / (It turns “ON” when optical pickup comes to innermost periphery.)

● S301 : Select/play/pause button (▶❚❚, SELECT)

● S302 : Stop/operation off button (■, STOP/OPR OFF)

● S303 : F.Skip/Video CD next switch (▶▶|, NEXT)

● S304 : R.Skip/Video CD previous switch (|◀◀, PREV)

● S308 : Anti-shock button (A. SHOCK)

● S309 : Play mode selector (MODE) in “NORMAL” position. / (NORMAL ⟺ PBC OFF ⟺ RESUME)

● S310 : Hold switch (HOLD)

● S311 : Video CD menu, select (bigger) switch (MENU+)

● S312 : Video CD menu, select (smaller) switch (MENU-)

● S313 : Return button (↩, RETURN)

● S314 : Video format select switch (NTSC, PAL)

● VR701 : Volume control VR

● VR851 : Power supply voltage adjustment VR

- The voltage values and waveforms are reference voltage of this measured by the DC electronic voltmeter (high-impededance) and oscilloscope on the basis of GND terminal (DC IN jack). Accordingly, there may arise some errors in the voltagevalues and waveforms depending on the internal impedance of the tester or measuring unit.

- The parenthesized is the voltage for test disc (1kHz, L+R, 0dB) in

play mode, and the other, for no disc in stop mode.
- AC adaptor is used for power supply.
- Voltage and signal line

: Positive Voltage Line

: CD-DA/VCD (Audio) Signal Line

: CD-DA/VCD (Audio & Video) Signal Line

: VCD (Video) Signal Line

: MIC Signal Line

Impotant safety notice:

- Components identified by ⚠ mark have special characteristics important for safety.
- Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistor), etc. are used. When replacing any of components, be sure to use only manufacture's specified partsshown in the parts list.

Cautions:

- IC and LSI are sensitive to static electricity.
- Secondary trouble can be prevented by taking care during repair.
- Cover the parts boxes made of plastics with aluminum foil.
- Ground the soldering iron.
- Put a conductive mat on the work table.
- Do not touch the pins of IC or LSI with fingers directly.

13. Schematic Diagram

14. Printed Circuit Board and Wiring Connection Diagram

15. Block Diagram

16. Terminal Function of IC's

16.1. IC101(AN8839NSBE1): Servo Amplifier

Pin No.	Mark	I/O / Division	Function
1	PDE	I	Tracking signal input (1) terminal
2	PDF	I	Tracking signal input (2) terminal
3	V_{DD}	I	Power supply input terminal
4	PDA	I	Focus signal input (1) terminal
5	PDB	I	Focus signal input (2) terminal
6	LPD	I	APC amplifier input terminal
7	LD	O	APC amplifier output terminal
8	RF	O	RF addition output terminal
9	RF IN	I	RF detection signal input terminal
10	CSBRT	I	Capacitor connection terminal for OFTR
11	CEA	I	HPF amplifier capacitor connection input terminal
12	BDO	O	Dropout signal output terminal / (H: dropout)
13	LDON	I	APC control input terminal
14	GND	—	Connected to GND
15	/RFDET	O	RF detection signal output terminal / (L: detection)
16	PDOWN	O	Reduced voltage detection signal output terminal
17	OFTR	O	Off-track signal output terminal / (H: off-track)
18	NC	—	Not used, open
19	ENV	O	RF envelop signal output terminal
20	ENV OFF	I	Envelop control input terminal
21	NC	—	Not used, open
22	TE IN	I	Tracking error amplifier input terminal
23	TE OUT	O	Tracking error amplifier output terminal
24	FE OUT	O	Focus error amplifier output terminal
25	FE IN	I	Focus error amplifier input terminal
26	VREF	O	Reference voltage output terminal

			terminal

Pin No.	Mark	I/O / Division	Function
27	TBAL	I	Tracking balance signal input terminal
28	FBAL	I	Focus balance signal input terminal

16.2. IC301(M38258M901GP): System Control / LCD Drive

Pin No.	Mark	I/O / Division	Function
1~3	KEY1 / ~KEY3	I	Key switch signal input
4	SW1	I	Mode (NORMAL, PBC, OFF, RESUME) input
5	SEL2	I	Not used, connected to GND via resistor
6	SEL1	I	Not used, connected to VCC via resistor
7~8	NC	—	Not used, open
9	HRDY	I	Ready signal input
10	HCK	O	Serial clock signal output
11	HDIO	I/O	Adress, data input/output
12	HSEL	O	Serial data signal output
13~14	NC	—	Not used, open
15	SSYNC	I	Sync clock signal input
16	HINT	I	Soft interrupt signal input
17	NC	—	Not used, open
18	MCLK	O	Command clock signal output
19	MDATA	O	Command data output
20	STAT	I	Status signal input
21	BLKCK	I	Sub code block clock input
22	WLSRCN	I	Remote control signal input
23	NC	—	Not used, open
24	/OPEN	I	CD cover open detection terminal / (L: open)
25	/EMPTY	—	Not used, open
26	/AUTO	I	Audio out cable detection input
27	/REST	I	REST detect input terminal
28	/MIC	I	MIC signal detection input
29	N/P	I	NTSC/PAL select signal input
30	/PLAY	I	Play signal input

Pin No.	Mark	I/O / Division	Function
31	/HOLD	I	Hold signal input
32	GND	—	GND terminal
33	/RESET	I	Reset signal input
34	DEMPH	I	DAC emphasis signal input
35	NC	—	Not used, open
36	SMCK	I	Clock signal input
37	NC	—	Not used, open
38	GND	—	GND terminal
39	NC	—	Not used, open
40	VMUTE	O	Video muting signal output
41	MUTE	O	Muting signal output
42	NC	—	Not used, open
43	VPOWER	O	Module power ON signal output
44~45	NC	—	Not used, open
46	STROBE	O	Battery voltage detect signal output
47	CHGCMP	I	Battery voltage detect signal input
48	MUTEO	O	Muting signal output
49~50	NC	—	Not used, open
51	MLD	O	Command load signal output
52	RSTAT	—	Not used, open
53	/ CHARGE	—	Not used, open
54	/ VCDRST	O	VCD reset signal output
55~62	NC	—	Not used, open
63	PDOWN	I	Power down signal input
64	KPOWER	O	Power supply control output
65	M1	O	Microphone volume signal output
66	M0		
67	KMUTE	I/O	KARAOKE muting signal output
68	E1	O	ECHO level signal output
69	E0		
70	EMUTE	O	Echo muting signal
71	NC	—	Not used, open
72~87	SEG16 / ~SEG1	O	LCD segment signal output
88	SEG0	—	Not used, open
89	V_{CC}	—	Power supply terminal

Pin No.	Mark	I/O / Division	Function
90	VREF	I	Reference voltage input
91	AV ss	—	GND terminal
92~95	COM3 / ~COM0	O	LCD common signal output
96	VL3	I	Control voltage input
97	VL2	I	Control voltage input
98~99	NC	—	Not used, open
100	VL1	I	Control voltage input

16.3. IC401(AN8746SAE1): Coil and Motor Drive

Pin No.	Mark	I/O / Division	Function
1	PV cc 1	I	Power supply input terminal
2	V cc	I	Power supply input terminal
3	MON	I	A/D reference voltage monitor input terminal
4	FI1	I	Focus coil (+) drive signal input terminal
5	RI1	I	Focus coil (-) drive signal input terminal
6	RO1	O	Focus coil (-) drive signal output terminal
7	PGND1	—	GND terminal
8	FO1	O	Focus coil (+) drive signal output terminal
9	FO2	O	Tracking coil (+) drive signal output terminal
10	PGND2	—	GND terminal
11	RO2	O	Tracking coil (-) drive signal output terminal
12	RI2	I	Tracking coil (-) drive signal input terminal
13	FI2	I	Tracking coil (+) drive signal input terminal
14	GND	—	GND terminal
15	NC	—	Not used, open
16	PV cc 2	I	Power supply input terminal
17	PV cc 3	I	Power supply input terminal
18	VGO	O	Output terminal to power supply
19	VGI	I	Power supply input terminal

Pin No.	Mark	I/O / Division	Function
20	FI3	I	Traverse motor (+) drive signal input terminal
21	RI3	I	Traverse motor (-) drive signal input terminal
22	RO3	O	Traverse motor (-) drive signal output terminal
23	PGND3	—	GND terminal
24	FO3	O	Traverse motot (+) drive signal output terminal
25	FO4	O	Traverse motot (+) drive signal output terminal
26	PGND4	—	GND terminal
27	RO4	O	Traverse motor (-) drive signal output terminal
28	RI4	I	Traverse motor (-) drive signal input terminal
29	FI4	I	Traverse motor (+) drive signal input terminal
30	PC	I	Hard mute input terminal
31	AC	I	Power supply input terminal
32	PV cc 4	I	Power supply input terminal

16.4. IC11(RS10003E2): DC/DC Converter

Pin No.	Mark	I/O / Division	Function
1	PGND1	—	GND terminal
2	DSW	O	DC/DC converter coil drive output terminal
3	PV cc 1	I	Power supply input terminal
4	VSEN	I	Empty detection input terminal / (connected to power supply)
5	RESTART	I	DC/DC converter drive input terminal
6	ICNT	I	Setting of charging current input terminal (Connected to GND through resistor)
7	AMUTE	O	Muting signal output terminal
8	START	I	Starting of DC/DC converter input terminal
9	VG	I	Power supply input terminal

Pin No.	Mark	I/O / Division	Function
10	LG	I	Coil drive input terminal for VG voltage increase (connected to power supply)
11	PGND2	—	GND terminal
12	IOUT	O	Charging signal and charging feedback output terminal
13	PV CC 2	I	Power supply input terminal
14	REGB	O	Regulator drive signal output terminal
15	MSTAT/ / ACDET	O	DC jack detection output terminal
16	MDATA/ / EMP	I	Power drop detection input terminal
17	MLD/ / VCNT	I	Regulator voltage switching input terminal
18	MCLK/ / CHARGE	I	Charging ON/OFF input terminal
19	S/P	I	Serial/parallel switching input terminal (connected to power supply)
20	DV DD	I	Power supply input terminal
21	CLK	I	DC/DC converter external clock input terminal
22	PREGND	—	GND terminal
23	AREF	O	Audio reference output terminal
24	AVCC	O	Ripple filter output terminal
25	CRP	I	Ripple filter smoothing capacitor connection terminal
26	RESET	O	Reset detection output terminal
27	SOFT	O	Soft start setting output terminal / (connected GND through capacitor)
28	EO	O	DC/DC converter error amplifier output terminal
29	EI	I	DC/DC converter error amplifier input terminal
30	VADJ	O	Output for varying DC/DC converter output terminal (Not used, open)

Pin No.	Mark	I/O / Division	Function
31	CT	O	Triangular wave output terminal / (connected GND through capacitor)
32	SPRT	O	Output terminal for setting of constants anti-power OFF / (connected to GND through capacitor)
33	OFF	—	DC/DC converter OFF(Not used, open)
34	BOUT	O	Amplifier output terminal (Not used, open)
35	STROBE	I	Strobe input terminal
36	SEI	I	Sub DC/DC converter error amplifier input terminal (Not used, open)
37	VSUB	I	Power supply input terminal
38	SSW		
39	SV CC		
40	USW	I	DC/DC converter coil drive input terminal

16.5. IC501(MN662782RPT1): Servo Processor, Digital Signal Processor, Digital Filter and D/A Converter

Pin No.	Mark	I/O / Division	Function
1	DV DD 5V	—	Power supply terminal (5V)
2~3	D0~D1	I/O	DRAM data input/output terminal
4	NWE	O	DRAM write enable output terminal
5	NRAS	O	DRAM row address strobe output terminal
6~7	D2~D3	I/O	DRAM data input/output terminal
8	NCAS1	O	DRAM culmun address strobe output terminal
9	NCAS2	O	Not used, open
10~14	A8~A4	O	DRAM address output terminal
15	A9		
16~19	A0~A3		
20	DV SS 2	—	GND (digital circuit) terminal

Pin No.	Mark	I/O / Division	Function
21	DV DD 2	—	Power supply (digital circuit) terminal
22	SPOUT	O	Spindle motor drive output terminal
23	TRV+	O	Traverse motor drive output terminal
24	TRV-	O	Traverse motor drive output terminal
25	TR+	O	Tracking coil drive output terminal
26	TR-	O	Tracking coil drive output terminal
27	FO+	O	Focus coil drive output terminal
28	FO-	O	Focus coil drive output terminal
29	FBAL	O	Focus balance adjustment output
30	TBAL	O	Tracking balance adjustment output
31	VREF	I	Reference voltage input
32	FE	I	Focus error input (analog input)
33	TE	I	Tracking error input (analog input)
34	RFENV	I	RF envelope signal input (analog input)
35	OFT	I	Off track signal input (“H” : Off track)
36	NRFDET	I	RF envelope signal input (“L” : detect)
37	BDO	I	Dropout signal input (“H” : dropout)
38	LDON	O	Laser ON signal output (“H” : ON)
39	ARF	I	RF signal input terminal
40	IREF	I	Reference current input terminal
41	AD PV CC	I	A/D converter reference voltage input
42	DSLF	O	DSL loop filter output terminal
43	DSLF2	O	DSL current correct signal output

Pin No.	Mark	I/O / Division	Function
44	PLLF	O	PLL loop filter output terminal
45	VCOF	O	VCO loop filter output terminal
46	$AV_{DD}2$	—	Power supply (analog circuit) terminal
47	$AV_{SS}2$	—	GND (analog circuit) terminal
48	OUTL	O	Lch audio signal output terminal
49	$AV_{SS}1$	—	GND (analog circuit) terminal
50	OUTR	O	Rch audio signal output terminal
51	$AV_{DD}1$	—	Power supply (analog circuit) terminal
52	FSEL	I	Noise filter ON/OFF select input / (“L” : ON)
53	TMOD1	I	Mode select signal input / (Connected to GND)
54	TMOD2	I	Mode select signal input / (Connected to GND)
55	FLAG	O	Not used, open
56	FCLK/ / IPFLAG	O	Phase synchronous signal output/Interpolation flag terminal / (“H” : interpolation)
57	EXT0/ / ISRDATA	I	Serial data signal input
58	EXT1/ / ILRCK	I	L/R discriminating signal input / (“H” :Lch, “L” : Rch)
59	EXT2/ / IBCLK	I	Serial bit clock
60	TX	O	Not used, open
61	MCLK	I	Command clock signal input
62	MDATA	I	Command data signal input
63	MLD	I	Command load signal input (“L” :Load)
64	BLKCK	O	Sub-code block clock signal output terminal (f=75Hz)
65	SQCK/ / BCLK	O	Sub-code Q resistor clock output/Serial bit clock output
66	SUBQ/ / LRCK	O	Sub-code Q data output/L/R discriminating signal output (“H” :Lch, “L” :Rch)

Pin No.	Mark	I/O / Division	Function
67	DMUTE/ / SRDATA	O	Muting signal output (“H” : Mute)/Serial data signal output
68	STAT	O	Status signal output terminal
69	NRST	I	Reset signal input terminal (“L” : Reset)
70	SPPOL	O	Spindle motor drive signal output terminal
71	PMCK	O	Frequency division clock signal output (f=88.2Hz)
72	SMCK	O	System clock output (f= 4.2336MHz)
73	SUBC/ / SSYNC	O	Sub-code serial output data
74	SBCK/ / 64FS	I	Clock input for Sub-code serial data
75	NCLDCK	O	Sub-code frame clock signal output terminal (f=7.35kHz)
76	NTEST	I	Test terminal (Normal: “H”)
77	X1	I	Crystal oscillator circuit input terminal (F= 16.9344MHz)
78	X2	O	Crystal oscillator circuit output terminal (F= 16.9344MHz)
79	DV_{DD} 1	—	Power supply (digital circuit) terminal
80	DV_{SS} 1	—	GND (digital circuit) terminal

17. Replacement Parts List

Notes:

***Important safety notice:**

Components identified by ⚠ mark have special characteristics important for safety.

***Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.**

***When replacing any of components, be sure to use only manufactures specified parts shown in the parts list.**

***The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)**

Parts without these indications can be used for all areas.

***The parenthesized indications in the Remarks columns specify the colours. (Refer to the cover page for colour.)**

Parts without these indications can be used for all colours.

***Warning: This product uses a laser diode. Refer to caution statements.**

***Capacity values are in microfarads (μ F) unless specified otherwise, P=Pico-farads (pF), F= Farads (F).**
Resistance values are in ohms, unless specified otherwise, 1K=1,000 (OHM), 1M=1,000k (OHM).
***The marking (RTL) indicates that the Retention Time is limited for this item. After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availabilityis dependant on the type of assembly, and in accordance with the laws governing part and product retention. After the end of this period, the assembly will no longer be available.**
***"<IA>" marks in Remarks indicates languages of instruction manuals.**
[<IA>:English/Chinese]

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
1	RFKJVP33GCSS	BOTTOM CABINET ASS'Y	1	
2	RFKKLVP33GKS	CD COVER ASS'Y	1	(VP33)
2	RFKKLVP43GKS	CD COVER ASS'Y	1	(VP43)
2	RFKKLVP48GKS	CD COVER ASS'Y	1	(VP48)
3	RGV0200-K1	SWITCH KNOB	3	
4	RJC93020-1	BATTERY TERMINAL	1	
5	RJF0032	JACK HOLDER	1	
6	RKW0623-Q	REMOTE CONT.FILTER	1	
7	XTN17+6GFZ	SCREW	4	
8	RME0308	OPEN SPRING	1	
9	K0RE00400003	OPERATION P.C.B.	1	
10	RHE5119YA	SCREW	4	
11	RAE0145Z	TRAVERSE DECK	1	⚠
11-1	RAF0142A	OPTICAL PICKUP	1	⚠
11-2	RDG0305	GEAR	1	
11-3	RDG0306	GEAR	1	
11-4	RJB2106A	TRAVERSE FPC	1	
11-5	RMG0449-H	FLOATING RUBBER	3	
11-6	RMC0264	THRUST SPRING	1	
11-7	RXQ0482	NUT PLATE SPRING	1	
11-8	RXQ0525	TRAVERSE MOTOR	1	
11-9	SNSD38	SCREW	1	
11-10	XQN17+BG45	SCREW	1	
11-11	XQN17+CG45	SCREW	1	
11-12	XQN2+BG55	SCREW	1	
12	RGU1926A-S	OPERATION BUTTON(A)	1	(VP33)
12	RGU1926-S	OPERATION BUTTON(A)	1	(VP43/VP48)
13	RGU1927A-S	OPERATION BUTTON(B)	1	(VP33)
13	RGU1927-S	OPERATION BUTTON(B)	1	(VP43/VP48)
14	RGV0273-S	SLIDE JOG KNOB	1	
15	RHD12002-K	SCREW	1	
16	RHW13021	WASHER	1	
17	RSQ0070	RUBBER	1	
18	VMG1292	ZEBRA RUBBER(B)	1	
19	VSS0575	CURSOR JOCKEY	1	
20	RYF0572B-S	LID ORNAMENT UNIT	1	(VP33)
20	RYF0572A-A	LID ORNAMENT UNIT	1	(VP43)
20	RYF0572-S	LID ORNAMENT UNIT	1	(VP48)

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
21	RGU1838-H	OPEN KNOB	1	
22	RKM0430A-H	INTERMEDIATE CABINET	1	(VP33/VP43)
22	RKM0430-H	INTERMEDIATE CABINET	1	(VP48)
23	RML0580	STOPPER	1	
24	RGN1967-K	NAME PLATE	1	(VP33GK)
24	RGN1968-K	NAME PLATE	1	(VP33GCS)
24	RGN1965-K	NAME PLATE	1	(VP43GK)
24	RGN1966-K	NAME PLATE	1	(VP43GCS)
24	RGN1962-K	NAME PLATE	1	(VP48GK)
24	RGN1963-K	NAME PLATE	1	(VP48GCS/GH)
25	RFKMLVP43GKS	BATTERY COVER ASS'Y	1	(GK)
25	RKK0135-H	BATTERY COVER ASS'Y	1	(GCS/VP48GH)
A1	RAK-SL975WK	REMOTE CONT.TRANSMITTER	1	(VP33/VP43)
A1	RAK-SL974WK	REMOTE CONT.TRANSMITTER	1	(VP48)
A2	RFEA413Z-W	AC ADAPTOR	1	G4C4CAH00005 (GCS) ⚠
A2	RFEA413T-1W	AC ADAPTOR	1	G4C4CAJ00010 (GK) ⚠
A2	RFEA413H-W	AC ADAPTOR	1	G4C4CAD00002 (VP48GH) ⚠
A3	RFEV334P-KS	STEREO EARPHONES	1	L0BAB0000090
A4	RJL3X001X15	CONNECTION CABLE	1	
A5	RQCB0169	SERVICE CENTER LIST	1	
A6	RQT5608-K	INSTRUCTION MANUAL	1	
A7	RFKFP3GAVT2S	RECHARGEABLE BATT.ASS'Y	1	(VP48)
A7-1	RXQ0449	BATTERY CARRYING CASE	1	(VP48)
C10	ECUV1H121JCV	50V 120P	1	
C11	ECUVNA105ZFV	10V 1U	1	F1H1A105A030
C12	ECST0JY475RR	6.3V 4.7U	1	ECST0JY475R
C13	RCE0JSL470IX	6.3V 47U	1	F2D0J4700006
C14	RCEV0GA221G	4V 220U	1	
C15	ECUZNC104ZFV	16V 0.1U	1	F1H1C1040008
C16,17	ECUVNA105ZFV	10V 1U	2	F1H1A105A030
C19	ECST0GY226RR	4V 22U	1	ECST0GY226R
C20	ECUVNA105ZFV	10V 1U	1	F1H1A105A030
C21	ECUVNH103KBV	50V 0.01U	1	F1H1H103A748
C22	ECUZNC104ZFV	16V 0.1U	1	F1H1C1040008
C23	ECUVNA105ZFV	10V 1U	1	F1H1A105A030
C24	ECUV1H561KBV	50V 560P	1	F1H1H561A013
C25,26	ECUVNA105ZFV	10V 1U	2	F1H1A105A030
C27	ECEA0JKS331	6.3V 330U	1	
C28	ECEA0GKS471	4V 470U	1	
C31	ECUVNC104KBV	16V 0.1U	1	
C33	ECST0JY475RR	6.3V 4.7U	1	ECST0JY475R
C34	ECUZNC104ZFV	16V 0.1U	1	F1H1C1040008
C101	ECUVNC104KBV	16V 0.1U	1	
C103	ECUVNE223KBV	25V 0.022U	1	F1H1E223A050
C111	ECUVNE223KBV	25V 0.022U	1	F1H1E223A050
C112	ECUV1H221KBV	50V 220P	1	F1H1H2210001
C113,14	ECUZNC104ZFV	16V 0.1U	2	F1H1C1040008
C115	ECUVNE223KBV	25V 0.022U	1	F1H1E223A050

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C120	ECUV1H152KBV	50V 1500P	1	F1H1H152A013
C121	ECUV1H121JCV	50V 120P	1	
C201	RCST0GY476RG	4V 47U	1	F3F0G4760001
C301	ECUVNA224KBV	10V 0.22U	1	F1H1A224A028
C351	ECST0JY475RR	6.3V 4.7U	1	ECST0JY475R
C352	ECUVNC104KBV	16V 0.1U	1	
C401	ECUZNC104ZFV	16V 0.1U	1	F1H1C1040008
C402-05	ECUVNA105ZFV	10V 1U	4	F1H1A105A030
C410	ECUVNA105ZFV	10V 1U	1	F1H1A105A030
C411	ECUZNC104ZFV	16V 0.1U	1	F1H1C1040008
C503	ECUV1H561KBV	50V 560P	1	F1H1H561A013
C504	ECUZNC104ZFV	16V 0.1U	1	F1H1C1040008
C505	ECUVNE223KBV	25V 0.022U	1	F1H1E223A050
C506	ECUVNA224KBV	10V 0.22U	1	F1H1A224A028
C507	RCEV0GA221G	4V 220U	1	
C508	ECUV0J474KBV	6.3V 0.47U	1	F1H0J474A002
C509	ECUVNH103KBV	50V 0.01U	1	F1H1H103A748
C510,11	ECUZNC104ZFV	16V 0.1U	2	F1H1C1040008
C513	ECUVNA105ZFV	10V 1U	1	F1H1A105A030
C514	ECUV1H102KBV	50V 1000P	1	
C515	ECUVNA105ZFV	10V 1U	1	F1H1A105A030
C516,17	ECUVNH103KBV	50V 0.01U	2	F1H1H103A748
C525	ECUZNC104ZFV	16V 0.1U	1	F1H1C1040008 (VP43/VP48)
C526	ECST0JY475RR	6.3V 4.7U	1	ECST0JY475R (VP43/VP48)
C601,02	ECUV1H681KBV	50V 680P	2	
C603,04	ECST0GY106RR	4V 10U	2	ECST0GY106R
C607,08	ECUV1H221KBV	50V 220P	2	F1H1H2210001
C609	ECUVNA105ZFV	10V 1U	1	F1H1A105A030
C610	RCST0GY476RG	4V 47U	1	F3F0G4760001
C611,12	ECST1AY225RR	10V 2.2U	2	ECST1AY225R
C613	ECUZNC104ZFV	16V 0.1U	1	F1H1C1040008
C615	ECST1AY225RR	10V 2.2U	1	ECST1AY225R
C617,18	ECUV1H220JCV	50V 22P	2	
C620	ECUZNC104ZFV	16V 0.1U	1	F1H1C1040008
C701,02	ECUV1H101KCV	50V 100P	2	F1H1H101A720
C703,04	ECEA0GKS221	4V 220U	2	
C705,06	ECUVNA224KBV	10V 0.22U	2	F1H1A224A028
C707	RCST0GY476RG	4V 47U	1	F3F0G4760001
C751	ECUV1H221KBV	50V 220P	1	F1H1H2210001 (VP48)
C752	ECST1EY474RR	25V 0.47U	1	ECST1EY474R (VP48)
C753	ECUV1H221KBV	50V 220P	1	F1H1H2210001 (VP48)
C754,55	ECUVNA105ZFV	10V 1U	2	F1H1A105A030 (VP48)
C756,57	ECUV1H221KBV	50V 220P	2	F1H1H2210001 (VP48)
C758	ECUVNA105ZFV	10V 1U	1	F1H1A105A030 (VP48)
C759	ECST0GY106RR	4V 10U	1	ECST0GY106R (VP48)

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C761,62	ECUVNA105ZFV	10V 1U	2	F1H1A105A030 (VP48)
C763	ECUVNH103KBV	50V 0.01U	1	F1H1H103A748 (VP48)
C764	ECUV1H102KBV	50V 1000P	1	(VP48)
C765	ECUVNC104KBV	16V 0.1U	1	(VP48)
C766,67	ECUVNA224KBV	10V 0.22U	2	F1H1A224A028 (VP48)
C768	RCST0GY476RG	4V 47U	1	F3F0G4760001 (VP48)
C769	ECUVNC104KBV	16V 0.1U	1	(VP48)
C771	RCST0GY476RG	4V 47U	1	F3F0G4760001 (VP48)
C772	ECUVNC104KBV	16V 0.1U	1	(VP48)
C773	ECUVNH103KBV	50V 0.01U	1	F1H1H103A748 (VP48)
C774	ECUV1H222KBV	50V 2200P	1	(VP48)
C775,76	ECUVNA105ZFV	10V 1U	2	F1H1A105A030 (VP48)
C780	ECUV1H102KBV	50V 1000P	1	
C801	ECEV0GA471P	4V 470U	1	
C802	ECUVNH103KBV	50V 0.01U	1	F1H1H103A748
C803	ECUV1H150KCV	50V 15P	1	
C804	ECUVNH103KBV	50V 0.01U	1	F1H1H103A748
C805,06	RCST0GY476RG	4V 47U	2	F3F0G4760001
C851	ECUV1H102KBV	50V 1000P	1	
C852	ECUVNA105ZFV	10V 1U	1	F1H1A105A030
C853	ECST0JY475RR	6.3V 4.7U	1	ECST0JY475R
C854	ECUV1H102KBV	50V 1000P	1	
C855	RCST0JC157RE	6.3V 150U	1	F3H0J157A001
C856	ECUVNA105ZFV	10V 1U	1	F1H1A105A030
C858	ECUVNA224KBV	10V 0.22U	1	F1H1A224A028
C859,60	ECUV1H470KCV	50V 47P	2	
C871	ECUZNC104ZFV	16V 0.1U	1	F1H1C1040008
C872	ECST0JY475RR	6.3V 4.7U	1	ECST0JY475R
C1000,01	ECUV1H100DCV	50V 10P	2	
C1002-12	ECUZNC104ZFV	16V 0.1U	11	F1H1C1040008
C1013	ECUV1H101KCV	50V 100P	1	F1H1H101A720
C1014	ECUV1H151KBV	50V 150P	1	
C1015	ECUV1H271KBV	50V 270P	1	F1H1H271A009
C1016,17	ECUZNC104ZFV	16V 0.1U	2	F1H1C1040008
C1018	ECUV1H331KBV	50V 330P	1	
C1019	ECUV1H101KCV	50V 100P	1	F1H1H101A720
C1020	ECUZNC104ZFV	16V 0.1U	1	F1H1C1040008
C1021	ECUV1H101KCV	50V 100P	1	F1H1H101A720
CN11	RJH8303-3	BATT.TERMINAL	1	K4BC03B00010
CN101	RJS2A6216T	CONNECTOR(16P)	1	K1MN16B00027
CN301	RJS2A6130T	CONNECTOR(30P)	1	K1MN30A00023
CN401	RJS2A5106T1	CONNECTOR(6P)	1	K1MN06A00021
CN801	RJU114W30	CONNECTOR(30P)	1	
CN1001	RJT114W30	CONNECTOR(30P)	1	
D11	MA1070400L	DIODE	1	MA2J70400L
D12	MA741WKTX	DIODE	1	MA3J741E0L

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
D21	MA111TX	DIODE	1	MA2J11100L
D101	MA111TX	DIODE	1	MA2J11100L
D301	M1MA141WKT1	DIODE	1	B0ADBA000001
D851	MA111TX	DIODE	1	MA2J11100L
D871	MA8051M	DIODE	1	MAZ80510M
D872	MA111TX	DIODE	1	MA2J11100L
D903	M1MA141WKT1	DIODE	1	B0ADBA000001
IC11	RS10003E2	IC	1	
IC101	AN8839NSBE2	IC	1	AN8839NSB-E2
IC301	M38258M901GP	IC	1	C2BBGE000434
IC401	AN8746SAE1	IC	1	AN8746SA-E1
IC501	MN662782RPT1	IC	1	
IC502	MNV4400DT8TL	IC	1	(VP43)
IC502	MNV7400CT1T	IC	1	MNV7400CT10T (VP48)
IC601	NJM2115VTE1	IC	1	C0ABBB000105
IC701	NJU7082BVAE1	IC	1	
IC751	NJM2112VTE1	IC	1	C0ABBB000081 (VP48)
IC752	M65850FPE1	IC	1	C1BB00000367 (VP48)
IC851	NJM2377MTE1	IC	1	C0DBCAE00002
IC1000	MN89103M2	IC	1	
IC1001	LH5V2RN0	IC	1	C3CBJC000012
IC1002	LC32V4260TLM	IC	1	
IC1003	TC7WU04FUT2L	IC	1	
IC1004	TC7W14FUTE1L	IC	1	
ICP11	RSFPB20ET-L	IC PROTECTOR	1	K5H102Z00002 ⚠ ;
ICP12	JAA2402631NA	IC PROTECTOR	1	⚠
JK11	RJJ43K09-C	DC IN	1	K2EB2B000006
JK601	RJJD3S5ZB-C	AUDIO OUT JACK	1	K2HC103B0061
JK701	RJJ33TK07-C	H.P. JACK	1	K2HC103B0054
JK751	RJJD3S5ZB-C	MIC JACK	1	K2HC103B0061 (VP48)
JK801	RJJ33TY04-C	VIDEO OUT JACK	1	K2HC103B0062
L11	RLQU331KT-W	COIL	1	G1C331K00004
L12	RLQS101KT1-T	COIL	1	G1C101M00011
L13	RLQU331KT-W	COIL	1	G1C331K00004
L801,02	RLQU220KT-W	COIL	2	G1C220K00012
L851	RLZ0034T-M	COIL	1	G5ZZ00000015
L871	RLQU331KT-W	COIL	1	G1C331K00004
L1000	RLQP1R8KT2-Y	COIL	1	G1C1R8KA0009
L1002	RLQP2R7KT2-Y	COIL	1	G1C2R7K00005
LCD301	L5ACACC00001	LCD	1	
P1	RPK1478	PACKING CASE	1	(VP33GK)
P1	RPK1479	PACKING CASE	1	(VP33GCS)
P1	RPK1476	PACKING CASE	1	(VP43GK)

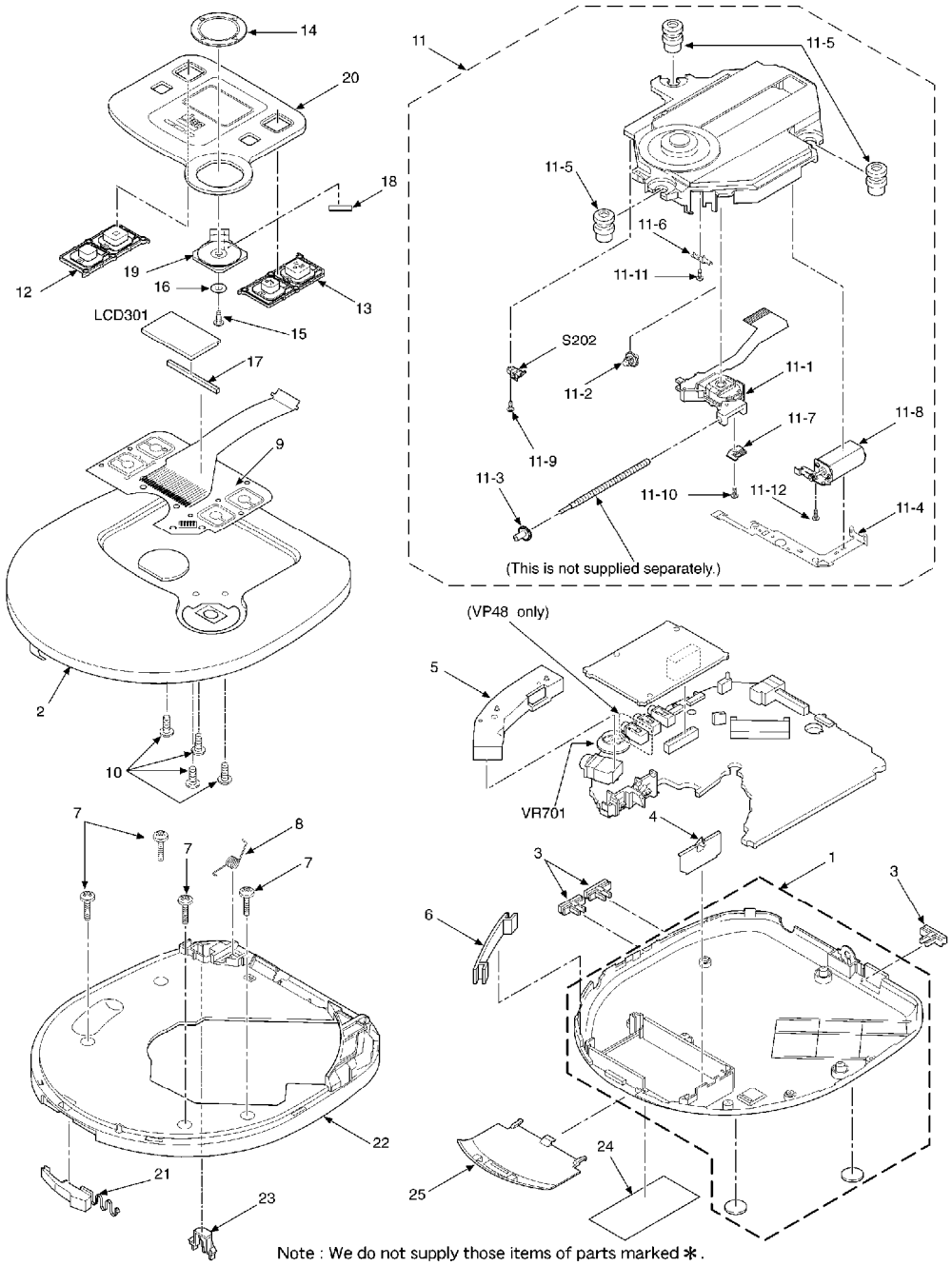
Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
P1	RPK1477	PACKING CASE	1	(VP43GCS)
P1	RPK1474	PACKING CASE	1	(VP48GK)
P1	RPK1475	PACKING CASE	1	(VP48GCS)
P1	RPK1525	PACKING CASE	1	(VP48GH)
P2	RPQ0836-1	PAD	1	
P3	RPQ0869-1	PAD	1	
P4	RPQ1109	PAD	1	
P5	RPF0111	PROTECTION BAG(UNIT)	1	
PCB1	REP2518M-T	MODULE P.C.B.	1	(RTL)
PCB2	REP3066C-M	MAIN P.C.B.	1	(RTL)(VP33)
PCB2	REP3066B-M	MAIN P.C.B.	1	(RTL)(VP43)
PCB2	REP3066A-M	MAIN P.C.B.	1	(RTL)(VP48)
Q10	2SB1182TLPQR	TRANSISTOR	1	B1BDND000001
Q11	DTA114YUA106	TRANSISTOR	1	B1GDCFJN0011
Q12	DTC114EUA106	TRANSISTOR	1	B1GBCFJJ0007
Q51	2SD1328QRSTX	TRANSISTOR	1	
Q54	DTC114EUA106	TRANSISTOR	1	B1GBCFJJ0007
Q201	MSB709RST1	TRANSISTOR	1	
Q601,02	2SD1328QRSTX	TRANSISTOR	1	
Q604	DTA114YUA106	TRANSISTOR	1	B1GDCFJN0011
Q608	FMG4T148	TRANSISTOR	1	B1GFCFJA0006
Q701,02	2SD1328QRSTX	TRANSISTOR	1	
Q753	UN5117TX	TRANSISTOR	1	UNR511700L (VP48)
Q754,55	XN1115TX	TRANSISTOR	2	XN0111500L (VP48)
Q758	IMD16AT108	TRANSISTOR	1	B1GKCFEL0001 (VP48)
Q761,62	2SD1328QRSTX	TRANSISTOR	2	(VP48)
Q803	FMG4T148	TRANSISTOR	1	B1GFCFJA0006
Q805	FMG4T148	TRANSISTOR	1	B1GFCFJA0006
Q851	XP161A1265PR	TRANSISTOR	1	
Q852	2SD1328QRSTX	TRANSISTOR	1	
Q855	2SD1328QRSTX	TRANSISTOR	1	
Q856	IMD16AT108	TRANSISTOR	1	B1GKCFEL0001
Q871	FMW1T98	TRANSISTOR	1	
R11	ERJ3GEYD822V	1/16W 8.2K	1	D0HB822ZA002
R12	ERJ3GEYD332V	1/16W 3.3K	1	D0HB332ZA002
R13	ERJ3GEYJ102V	1/16W 1K	1	ERJ3GEYJ102Z
R14	ERJ3GEYJ222V	1/16W 2.2K	1	
R15,16	ERJ3GEYJ273V	1/16W 27K	2	D0GB273JA002
R17	ERJ3GEYD222V	1/16W 2.2K	1	
R18	ERJ3GEYD122V	1/16W 1.2K	1	
R22	ERJ3GEYJ223V	1/16W 22K	1	D0GB223JA002
R25	ERJ3GEYJ104Z	1/16W 100K	1	
R27	ERJ3GEYJ392V	1/16W 3.9K	1	
R28	ERJ3GEYJ100V	1/16W 10	1	
R29	ERJ3GEYJ562V	1/16W 5.6K	1	D0GB562JA002
R32	ERJ3GEYJ103Z	1/16W 10K	1	
R34	ERJ3GEYJ683V	1/16W 68K	1	D0GB683JA002
R35	ERJ3GEYJ104Z	1/16W 100K	1	
R51	ERJ3GEYJ152V	1/16W 1.5K	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R113,14	ERJ3GEYJ330V	1/16W 33	2	D0GB330JA002
R120	ERJ3GEYJ103Z	1/16W 10K	1	
R121,22	ERJ3GEYJ124V	1/16W 120K	2	D0GB124JA002
R201	ERJ3GEYJ2R2V	1/16W 2.2	1	D0GB2R2JA002
R202	ERJ3GEYJ223V	1/16W 22K	1	D0GB223JA002
R301	EXBV8V473JV	1/16W 47K	1	
R302	EXBV8V104JV	1/16W 100K	1	
R303-05	ERJ3GEYJ102V	1/16W 1K	3	ERJ3GEYJ102Z
R306,07	ERJ3GEYJ473V	1/16W 47K	2	D0GB473JA002
R309	ERJ3GEYJ394V	1/16W 390K	1	
R322	ERJ3GEYJ104Z	1/16W 100K	1	
R323	ERJ3GEYJ224V	1/16W 220K	1	D0GB224JA002
R325	ERJ3GEYJ224V	1/16W 220K	1	D0GB224JA002
R326	ERJ3GEYD274V	1/16W 270K	1	
R328	ERJ3GEYJ223V	1/16W 22K	1	D0GB223JA002
R330	ERJ3GEYJ223V	1/16W 22K	1	D0GB223JA002 (VP33/VP43)
R331	ERJ3GEYJ223V	1/16W 22K	1	D0GB223JA002 (VP48)
R333	ERJ3GEYJ104Z	1/16W 100K	1	
R334	ERJ3GEYJ224V	1/16W 220K	1	D0GB224JA002
R351	ERJ3GEYJ473V	1/16W 47K	1	D0GB473JA002
R352	ERJ3GEYJ221V	1/16W 220	1	
R383,84	ERJ3GEYJ473V	1/16W 47K	2	D0GB473JA002
R501	ERJ3GEYJ683V	1/16W 68K	1	D0GB683JA002
R502	ERJ3GEYJ563V	1/16W 56K	1	
R503	ERJ3GEYJ105V	1/16W 1M	1	
R505	ERJ3GEYJ391V	1/16W 390	1	
R506	ERJ3GEYJ222V	1/16W 2.2K	1	
R508	ERJ3GEYJ100V	1/16W 10	1	
R509	EXBV8V102JV	1/16W 1K	1	
R513	ERJ3GEYJ104Z	1/16W 100K	1	
R601,02	ERJ3GEYJ102V	1/16W 1K	2	ERJ3GEYJ102Z
R603,04	ERJ3GEYJ473V	1/16W 47K	2	D0GB473JA002
R605,06	ERJ3GEYJ102V	1/16W 1K	2	ERJ3GEYJ102Z
R607,08	ERJ3GEYJ473V	1/16W 47K	2	D0GB473JA002
R609,10	ERJ3GEYJ183V	1/16W 18K	2	D0GB183JA002
R611,12	ERJ3GEYJ332V	1/16W 3.3K	2	D0GB332JA002
R613,14	ERJ3GEYJ333V	1/16W 33K	2	D0GB333JA002
R615,16	ERJ3GEYJ392V	1/16W 3.9K	2	
R701,02	ERJ3GEYJ472V	1/16W 4.7K	2	D0GB472JA002
R705,06	ERJ3GEYJ180V	1/16W 18	2	
R709-12	ERJ3GEYJ473V	1/16W 47K	4	D0GB473JA002
R713,14	ERJ3GEYJ224V	1/16W 220K	2	D0GB224JA002
R715,16	ERJ3GEYJ103Z	1/16W 10K	2	
R717,18	ERJ3GEYJ223V	1/16W 22K	2	D0GB223JA002
R719,20	ERJ3GEYJ331V	1/16W 330	2	
R751	ERJ3GEYJ473V	1/16W 47K	1	D0GB473JA002 (VP48)
R752	ERJ3GEYJ123V	1/16W 12K	1	(VP48)
R753	ERJ3GEYJ394V	1/16W 390K	1	(VP48)
R754	ERJ3GEYJ183V	1/16W 18K	1	D0GB183JA002 (VP48)
R755	ERJ3GEYJ823V	1/16W 82K	1	D0GB823JA002 (VP48)

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R756	ERJ3GEYJ472V	1/16W 4.7K	1	D0GB472JA002 (VP48)
R757	ERJ3GEYJ103Z	1/16W 10K	1	(VP48)
R758	ERJ3GEYJ683V	1/16W 68K	1	D0GB683JA002 (VP48)
R759	ERJ3GEYJ102V	1/16W 1K	1	ERJ3GEYJ102Z (VP48)
R760	ERJ3GEYJ473V	1/16W 47K	1	D0GB473JA002 (VP48)
R763	ERJ3GEYJ103Z	1/16W 10K	1	(VP48)
R765	ERJ3GEYJ330V	1/16W 33	1	D0GB330JA002 (VP48)
R766	ERJ3GEYJ393V	1/16W 39K	1	D0GB393JA002 (VP48)
R770	MCR03PZHJ561	1/16W 560	1	ERJ3GEYJ561V (VP48)
R771,72	EXBV8V153JV	1/16W 15K	2	(VP48)
R774	ERJ3GEYJ682V	1/16W 6.8K	1	D0GB682JA002 (VP48)
R775	ERJ3GEYJ123V	1/16W 12K	1	(VP48)
R776,77	ERJ3GEYJ104Z	1/16W 100K	2	(VP48)
R778	ERJ3GEYJ121V	1/16W 120	1	(VP48)
R779	ERJ3GEYJ681V	1/16W 680	1	D0GB681JA002 (VP48)
R780	ERJ3GEYJ102V	1/16W 1K	1	ERJ3GEYJ102Z (VP48)
R781	ERJ3GEYJ101V	1/16W 100	1	(VP48)
R782	ERJ3GEYJ473V	1/16W 47K	1	D0GB473JA002 (VP48)
R783,84	ERJ3GEYJ273V	1/16W 27K	2	D0GB273JA002 (VP48)
R785	ERJ3GEYJ102V	1/16W 1K	1	ERJ3GEYJ102Z (VP48)
R788	ERJ3GEYJ102V	1/16W 1K	1	ERJ3GEYJ102Z (VP48)
R801	ERJ3GEYJ223V	1/16W 22K	1	D0GB223JA002
R804	ERJ3GEYJ473V	1/16W 47K	1	D0GB473JA002
R806	EXBV8V102JV	1/16W 1K	1	
R851	ERJ3GEYJ104Z	1/16W 100K	1	
R852	ERJ3GEYJ153V	1/16W 15K	1	
R853	ERJ3GEYJ273V	1/16W 27K	1	D0GB273JA002
R854	ERJ3GEYJ123V	1/16W 12K	1	
R855	ERJ3GEYJ100V	1/16W 10	1	
R857	ERJ3GEYJ823V	1/16W 82K	1	D0GB823JA002
R858	ERJ3GEYJ153V	1/16W 15K	1	
R859	ERJ3GEYJ102V	1/16W 1K	1	ERJ3GEYJ102Z
R860	ERJ3GEYJ100V	1/16W 10	1	
R861	ERJ3GEYJ223V	1/16W 22K	1	D0GB223JA002
R871	ERJ3GEYJ472V	1/16W 4.7K	1	D0GB472JA002
R872	ERJ3GEYJ103Z	1/16W 10K	1	
R873	ERJ3GEYJ153V	1/16W 15K	1	
R1000	ERJ3GEYJ562V	1/16W 5.6K	1	D0GB562JA002
R1001-03	ERJ3GEYJ101V	1/16W 100	3	
R1004	ERJ3GEYJ103Z	1/16W 10K	1	
R1005	ERJ3GEYD750V	1/16W 75	1	
R1006	ERJ3GEYJ103Z	1/16W 10K	1	

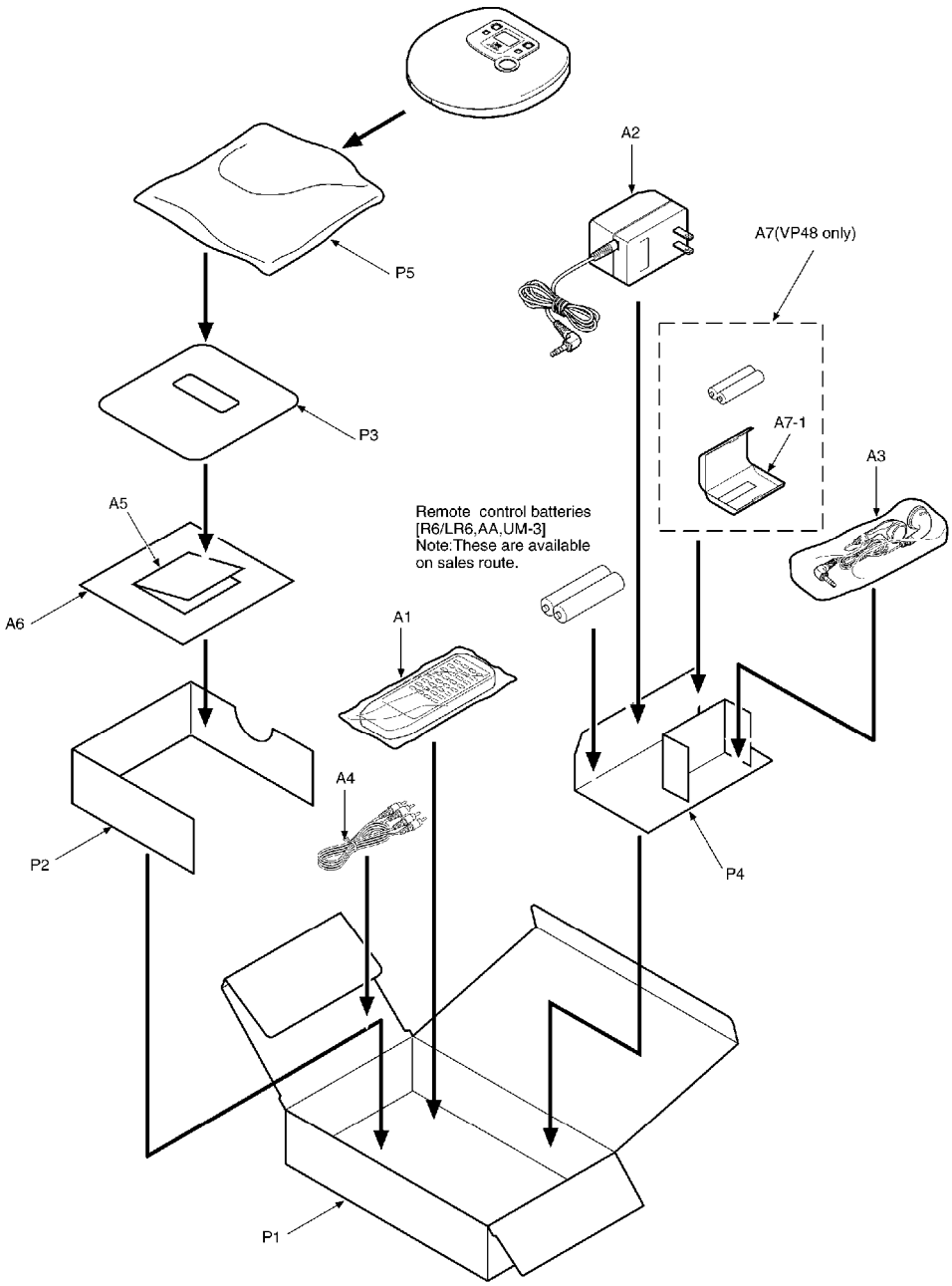
Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R1007	ERJ3GEYD562V	1/16W 5.6K	1	
R1008	ERJ3GEYJ103Z	1/16W 10K	1	
R1009	ERJ3GEYD912V	1/16W 9.1K	1	
R1010,11	ERJ3GEYJ103Z	1/16W 10K	2	
R1012	ERJ3GEYD332V	1/16W 3.3K	1	D0HB332ZA002
R1013,14	ERJ3GEYD750V	1/16W 75	2	
R1020	ERJ3GEY0R00V	1/16W 0	1	
RJ301	ERJ3GEY0R00V	1/16W 0	1	(VP48)
RJ351	ECUZNC104ZFV	16V 0.1U	1	F1H1C1040008 (VP48)
RJ351	ERJ3GEY0R00V	1/16W 0	1	(VP33/VP43)
RJ501-05	ERJ3GEY0R00V	1/16W 0	5	(VP43)
RJ511-15	ERJ3GEY0R00V	1/16W 0	5	(VP48)
RJ516	ERJ3GEY0R00V	1/16W 0	1	(VP43)
RJ517	ERJ3GEY0R00V	1/16W 0	1	(VP48)
RJ601	RLBV102V-Y	COIL	1	J0JBC0000014
RJ602	ERJ3GEY0R00V	1/16W 0	1	
RJ701-06	RLBV102V-Y	COIL	6	J0JBC0000014
RJ751	ECUZNC104ZFV	16V 0.1U	1	F1H1C1040008 (VP33/VP43)
RJ751	ERJ3GEY0R00V	1/16W 0	1	(VP48)
S201	ESE11SV6	SW,LASER ON/OFF	1	
S202	ESE11HS4	SW,REST DET.	1	
S309	RSS3A007-1A	SW,MODE	1	K0D113B00037
S310	RSS2A010-1A	SW,HOLD	1	K0D112B00071
S314	RSS2A010-1A	SW,NTSC/PAL	1	K0D112B00071
VR701	EVUTUFB11C54	V.R.,VOLUME	1	
VR851	RRN3A05B33WL	V.R.,VOLTAGE ADJ.	1	
X501	RSXY16M9M04T	OSCILLATOR	1	
X1000	RSXC27M0S02T	OSCILLATOR	1	H0J270500013
Z351	RCDRS-52	REMOTE SENSOR	1	B3RZB0000004

18. Cabinet Parts Location



Note : We do not supply those items of parts marked ✻.

19. Packaging



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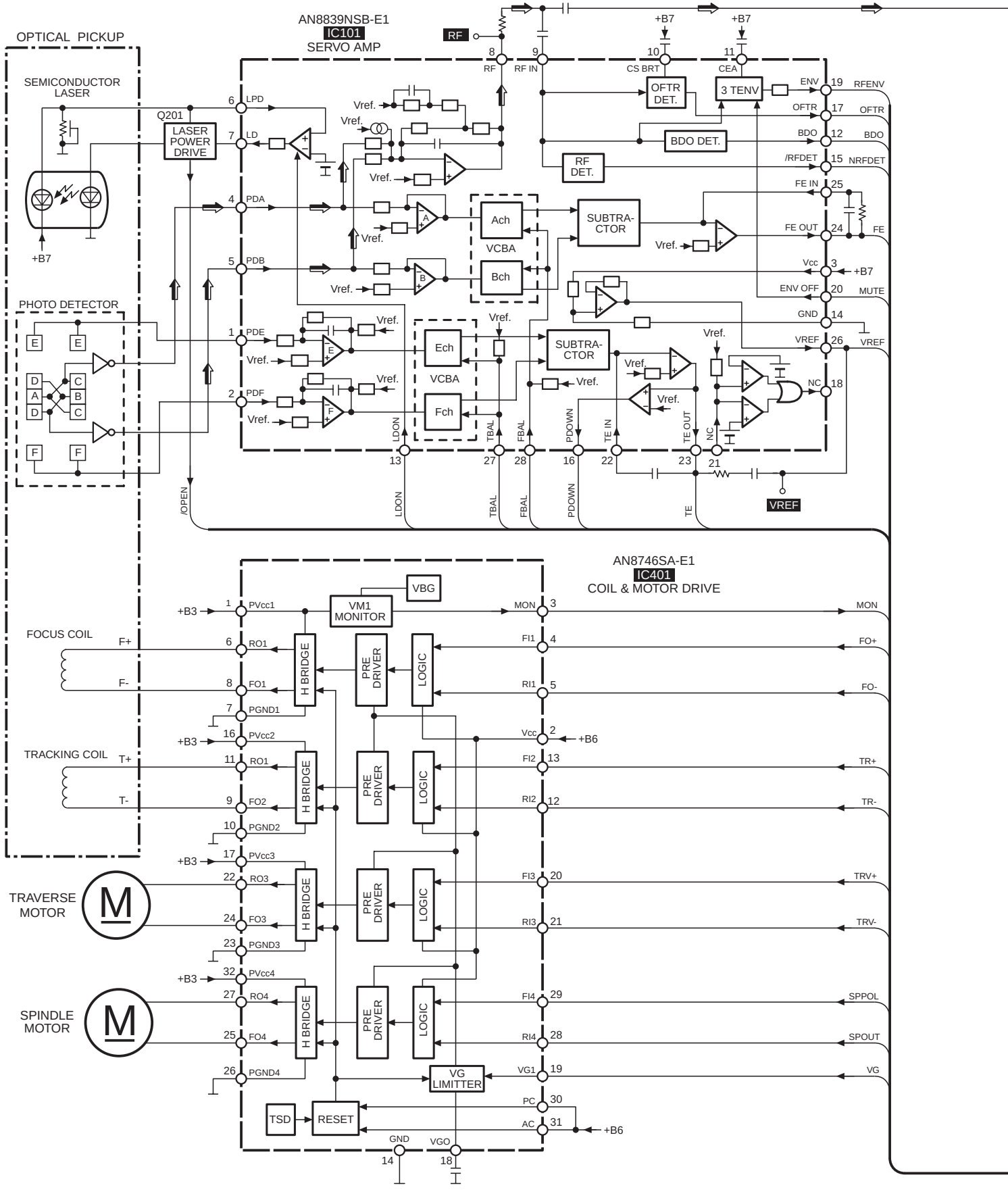
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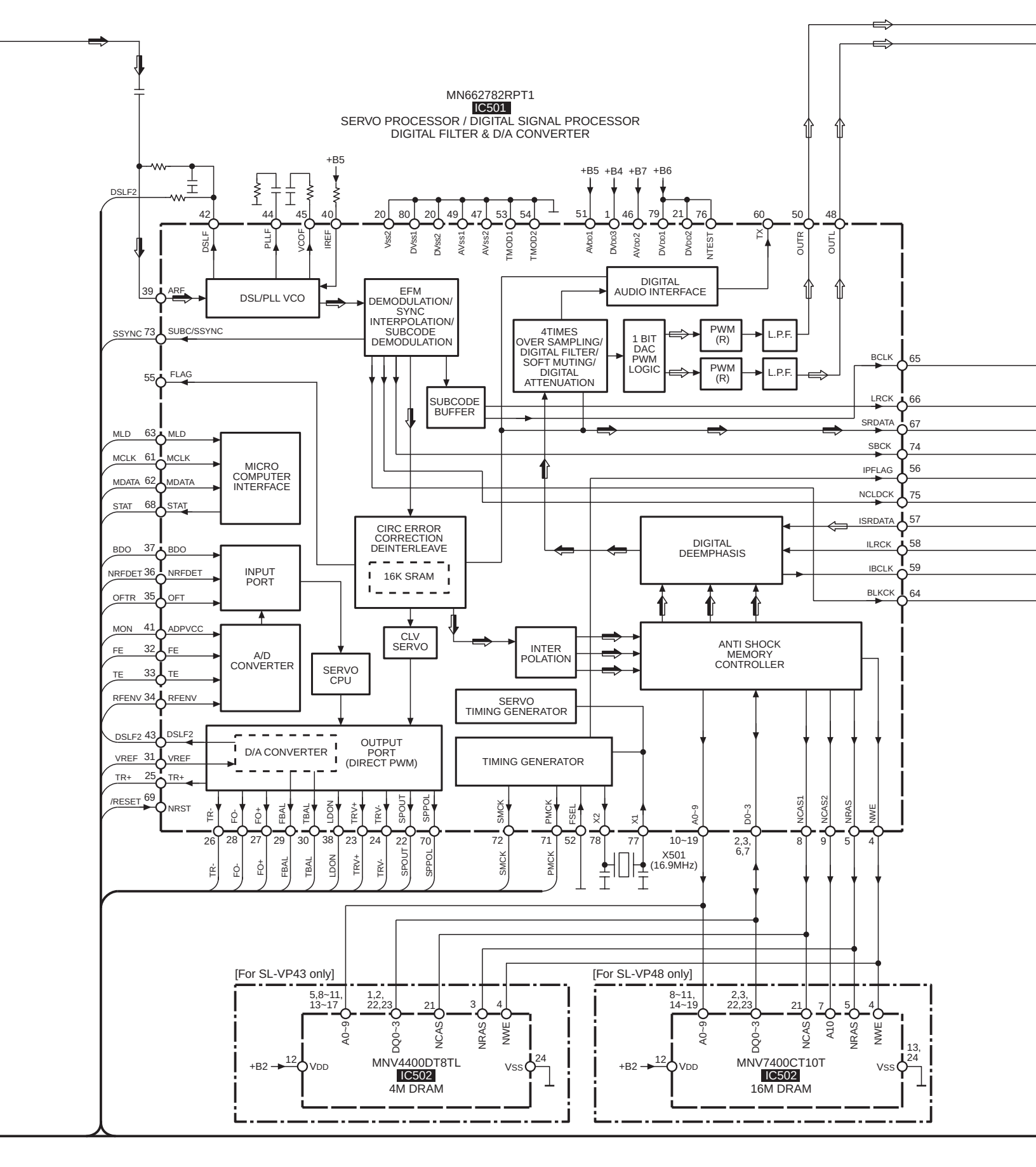
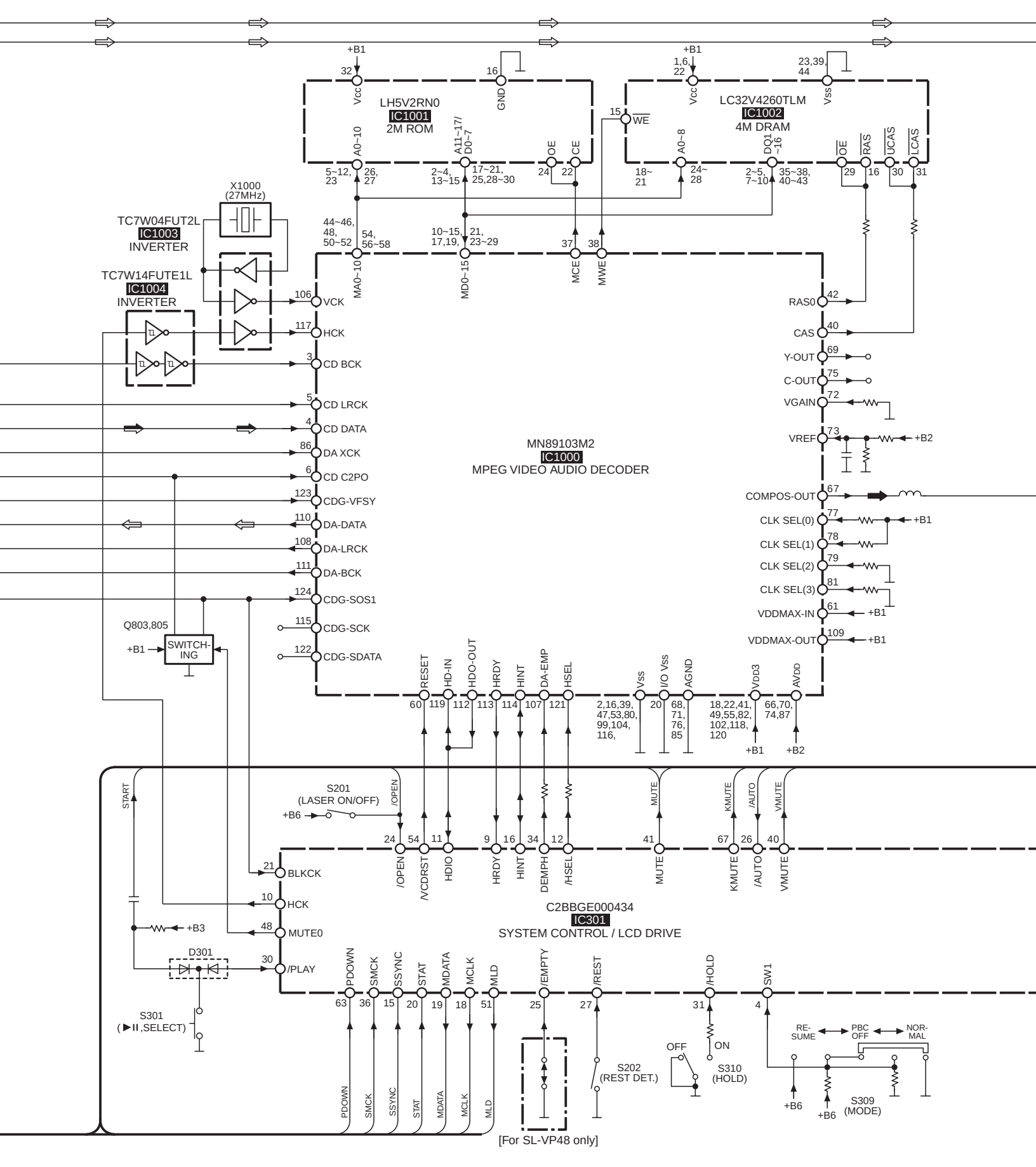
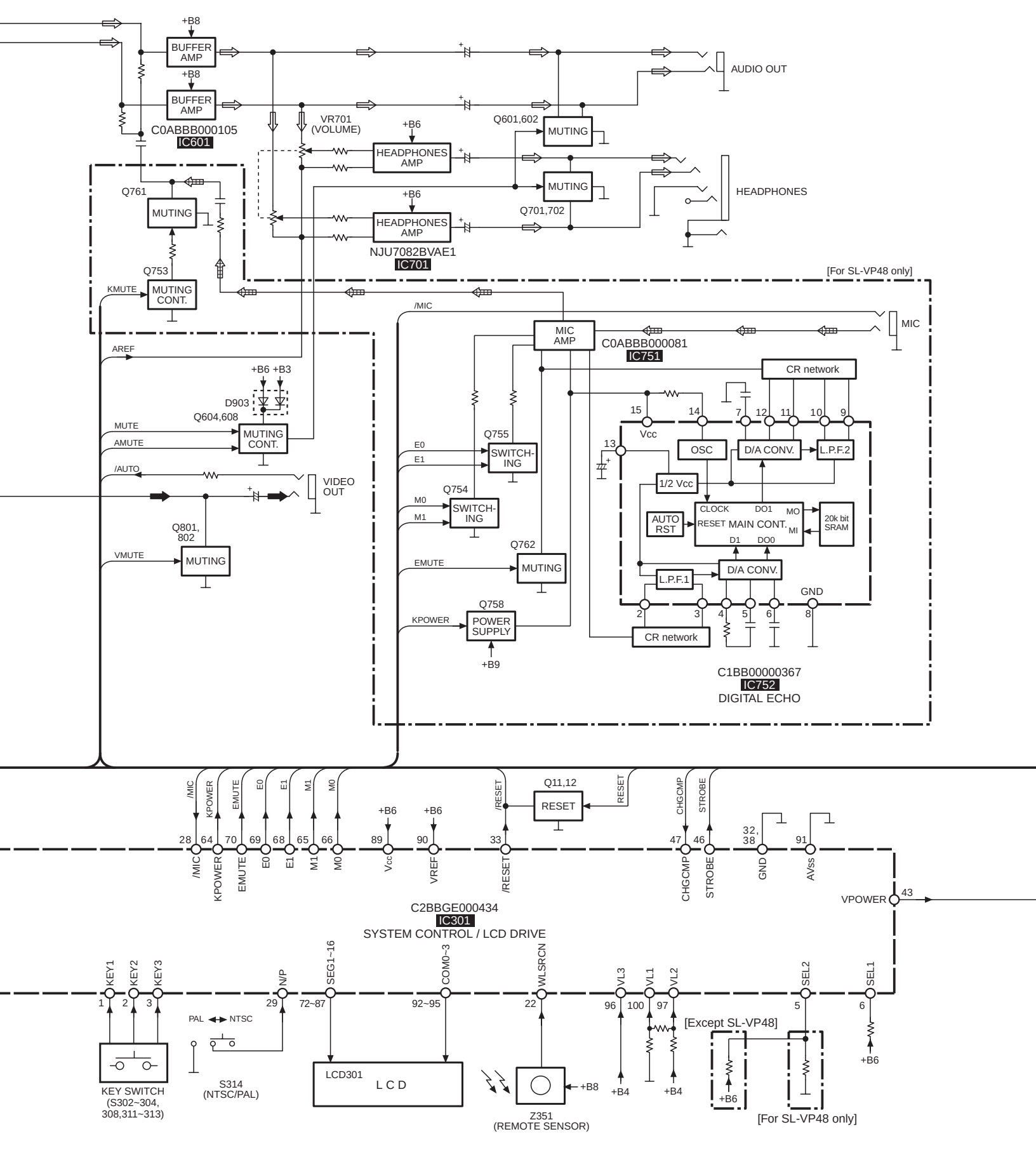
SEMICONDUCTOR LASER
Q201
LASER POWER DRIVE
+B7
PHOTO DETECTOR
E
D
A
C
B
F
AN8839NSB-E1
IC101
SERVO AMP
RF
RF
RF IN
CS BRT
CEA
+B7
OFTR DET.
3 TENV
BDO DET.
RF DET.
ENV
OFTR
BDO
/RFDET
RFENV
NRFDET
LPD
LD
PDA
PDB
PDE
PDF
Vref.
A
B
E
F
Ach
Bch
Ech
Fch
VCBA
SUBTRA-CTOR
FE IN
FE OUT
FE
Vcc
ENV OFF
MUTE
GND
VREF
NC
LDON
TBAL
FBAL
PDOWN
TE IN
TE OUT
/OPEN
TE
VREF
AN8746SA-E1
IC401
COIL & MOTOR DRIVE
VBG
VM1 MONITOR
MON
PVcc1
PVcc2
PVcc3
PVcc4
+B3
+B6
FOCUS COIL
F+
F-
TRACKING COIL
T+
T-
TRAVERSE MOTOR
SPINDLE MOTOR
M
RO1
FO1
RO2
FO2
RO3
FO3
RO4
FO4
PGND1
PGND2
PGND3
PGND4
H BRIDGE
PRE DRIVER
LOGIC
FI1
RI1
FI2
RI2
FI3
RI3
FI4
RI4
FO+
FO-
TR+
TR-
TRV+
TRV-
SPPOL
SPOUT
VG
VG1
VG LIMITTER
PC
AC
TSD
RESET
GND
VGO


MN662782RPT1
IC501
SERVO PROCESSOR / DIGITAL SIGNAL PROCESSOR
DIGITAL FILTER & D/A CONVERTER
DSL/PLL VCO
EFM DEMODULATION/ SYNC INTERPOLATION/ SUBCODE DEMODULATION
DIGITAL AUDIO INTERFACE
4TIMES OVER SAMPLING/ DIGITAL FILTER/ SOFT MUTING/ DIGITAL ATTENUATION
1 BIT DAC PWM LOGIC
PWM (R)
L.P.F.
SUBCODE BUFFER
MICRO COMPUTER INTERFACE
INPUT PORT
A/D CONVERTER
CIRC ERROR CORRECTION DEINTERLEAVE
16K SRAM
DIGITAL DEEMPHASIS
CLV SERVO
SERVO CPU
INTER POLATION
ANTI SHOCK MEMORY CONTROLLER
SERVO TIMING GENERATOR
TIMING GENERATOR
D/A CONVERTER
OUTPUT PORT (DIRECT PWM)
X501 (16.9MHz)
[For SL-VP43 only]
MNV4400DT8TL
IC502
4M DRAM
[For SL-VP48 only]
MNV7400CT10T
IC502
16M DRAM


LH5V2RN0
IC1001
2M ROM
LC32V4260TLM
IC1002
4M DRAM
X1000
(27MHz)
TC7W04FUT2L
IC1003
INVERTER
TC7W14FUTE1L
IC1004
INVERTER
MN89103M2
IC1000
MPEG VIDEO AUDIO DECODER
C2BBGE000434
IC301
SYSTEM CONTROL / LCD DRIVE
VCK
HCK
CD BCK
CD LRCK
CD DATA
DA XCK
CD C2PO
CDG-VFSY
DA-DATA
DA-LRCK
DA-BCK
CDG-SOS1
CDG-SCK
CDG-SDATA
RAS0
CAS
Y-OUT
C-OUT
VGAIN
VREF
COMPOS-OUT
CLK SEL(0)
CLK SEL(1)
CLK SEL(2)
CLK SEL(3)
VDDMAX-IN
VDDMAX-OUT
Q803,805
SWITCH-ING
S201
(LASER ON/OFF)
S301
(▶II,SELECT)
D301
S202
(REST DET.)
S310
(HOLD)
S309
(MODE)
RE-SUME
PBC OFF
NOR-MAL
[For SL-VP48 only]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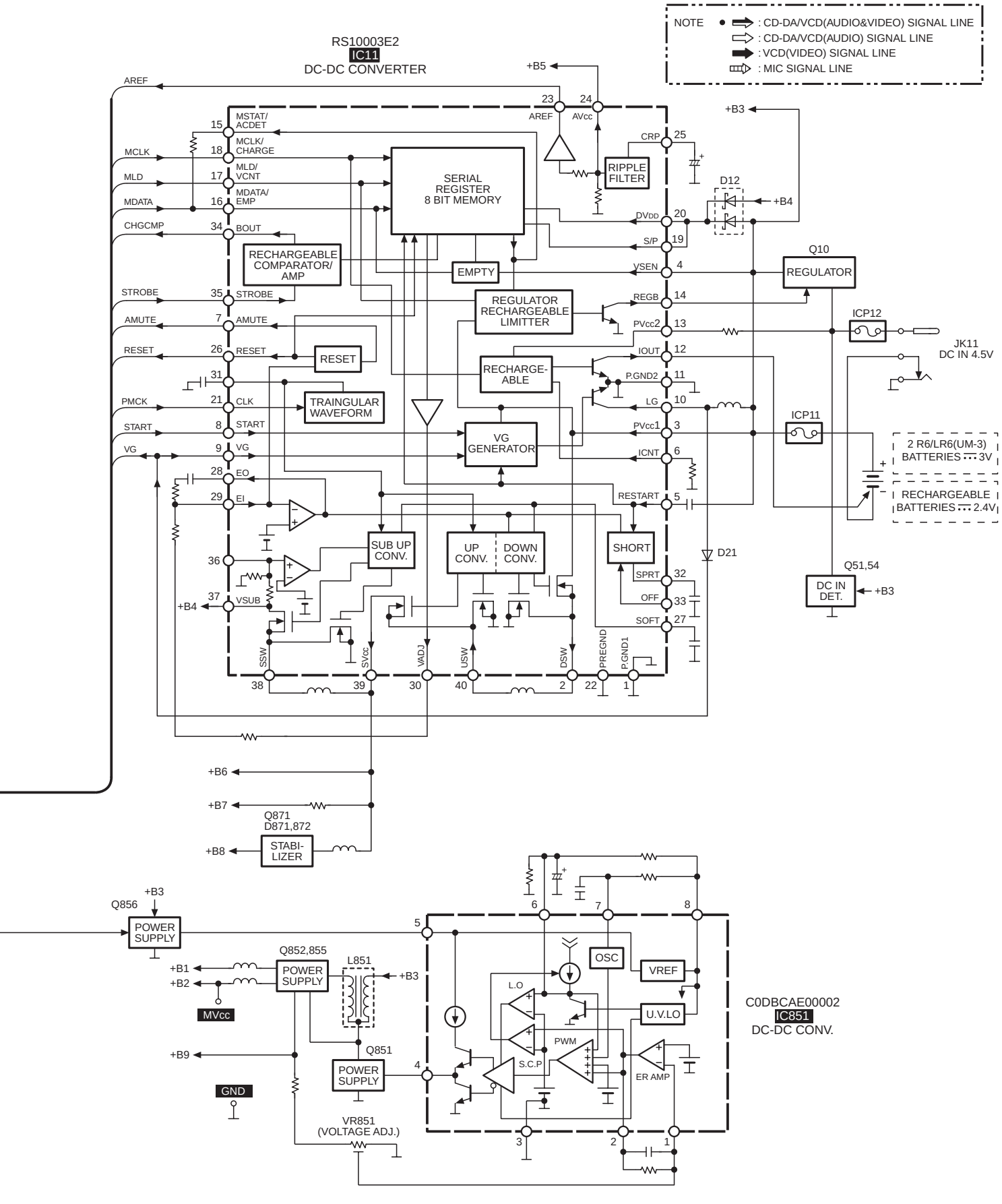
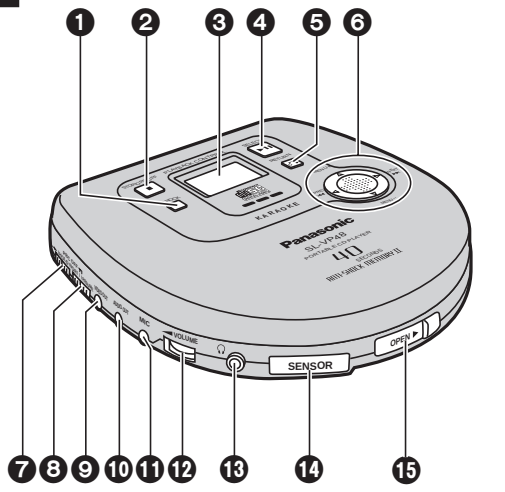
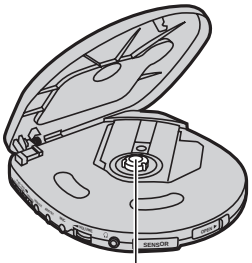
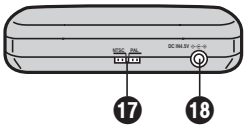
BUFFER AMP
+B8
BUFFER AMP
AUDIO OUT
C0ABBB000105
IC601
VR701 (VOLUME)
+B6
HEADPHONES AMP
Q601,602
MUTING
MUTING
HEADPHONES
Q701,702
+B6
HEADPHONES AMP
NJU7082BVAE1
IC701
Q761
MUTING
Q753
KMUTE
MUTING CONT.
[For SL-VP48 only]
/MIC
MIC
MIC AMP
C0ABBB000081
IC751
AREF
+B6 +B3
D903
Q604,608
MUTE
AMUTE
MUTING CONT.
/AUTO
VIDEO OUT
CR network
15
14
7
12
11
10
9
Vcc
OSC
D/A CONV.
L.P.F.2
13
1/2 Vcc
E0
E1
Q755
SWITCH-ING
M0
M1
Q754
SWITCH-ING
CLOCK
DO1
MO
AUTO RST
RESET
MAIN CONT.
MI
20k bit SRAM
D1
DO0
D/A CONV.
L.P.F.1
GND
2
3
4
5
6
8
CR network
Q801, 802
VMUTE
MUTING
EMUTE
Q762
MUTING
KPOWER
Q758
POWER SUPPLY
+B9
C1BB00000367
IC752
DIGITAL ECHO
/MIC
KPOWER
EMUTE
E0
E1
M1
M0
+B6
+B6
/RESET
Q11,12
RESET
RESET
CHGCMP
STROBE
28
64
70
69
68
65
66
89
90
33
47
46
32, 38
91
/MIC
KPOWER
EMUTE
E0
E1
M1
M0
Vcc
VREF
/RESET
CHGCMP
STROBE
GND
AVss
VPOWER
43
C2BBGE000434
IC301
SYSTEM CONTROL / LCD DRIVE
KEY1
KEY2
KEY3
N/P
SEG1~16
COM0~3
WLSRCN
VL3
VL1
VL2
SEL2
SEL1
1
2
3
29
72~87
92~95
22
96
100
97
5
6
PAL ↔ NTSC
[Except SL-VP48]
KEY SWITCH (S302~304, 308,311~313)
S314 (NTSC/PAL)
LCD301
L C D
+B8
+B4
+B4
+B6
+B6
Z351 (REMOTE SENSOR)
[For SL-VP48 only]


NOTE
: CD-DA/VCD(AUDIO&VIDEO) SIGNAL LINE
: CD-DA/VCD(AUDIO) SIGNAL LINE
: VCD(VIDEO) SIGNAL LINE
: MIC SIGNAL LINE
RS10003E2
IC11
DC-DC CONVERTER
AREF
MCLK
MLD
MDATA
CHGCMP
STROBE
AMUTE
RESET
PMCK
START
VG
MSTAT/ ACDET
MCLK/ CHARGE
MLD/ VCNT
MDATA/ EMP
BOUT
CLK
EO
EI
VSUB
SSW
SVcc
VADJ
USW
DSW
PREGND
P.GND1
AVcc
CRP
DVDD
S/P
VSEN
REGB
PVcc2
IOUT
P.GND2
LG
PVcc1
ICNT
RESTART
SPRT
OFF
SOFT
+B5
+B3
+B4
+B6
+B7
+B8
SERIAL REGISTER 8 BIT MEMORY
RIPPLE FILTER
RECHARGEABLE COMPARATOR/ AMP
EMPTY
REGULATOR RECHARGEABLE LIMITTER
RESET
RECHARGE-ABLE
TRAINGULAR WAVEFORM
VG GENERATOR
SUB UP CONV.
UP CONV.
DOWN CONV.
SHORT
STABI-LIZER
Q871
D871,872
D12
D21
Q10
REGULATOR
ICP12
ICP11
JK11
DC IN 4.5V
2 R6/LR6(UM-3) BATTERIES 3V
RECHARGEABLE BATTERIES 2.4V
Q51,54
DC IN DET.
Q856
POWER SUPPLY
Q852,855
L851
MVcc
+B1
+B2
+B9
GND
Q851
VR851
(VOLTAGE ADJ.)
OSC
VREF
L.O
U.V.LO
PWM
S.C.P
ER AMP
C0DBCAE00002
IC851
DC-DC CONV.

A

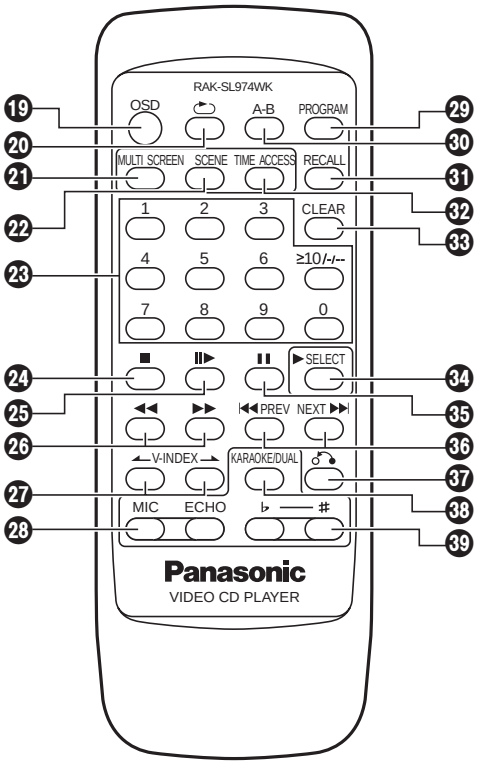






Back panel of the unit

B



Illustrations showing SL-VP48 are used in these instructions

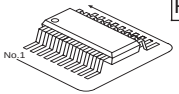
Main unit A

❶ **SL-VP48** **SL-VP43** **Anti-shock button (A.SHOCK)**
❷ **Stop/operation off button (■, STOP/OPR OFF)**
❸ **Display**
❹ **Select/play/pause button (▶❚❚, SELECT)**
❺ **Return button (↶, RETURN)**
❻ **Cursor jockey (MENU +, MENU −, PREV ⏮, NEXT ⏭)**
❼ **Hold switch (HOLD)**
❽ **Play mode selector (NOR, PBC OFF, RESUME)**
❾ **Video output terminal (VIDEO OUT)**
❿ **Audio output terminal (AUDIO OUT)**
⓫ **SL-VP48** **Microphone jack (MIC)**
⓬ **Headphone volume control (VOLUME)**
⓭ **Headphone jack (🎧)**
⓮ **Remote control signal sensor (SENSOR)**
⓯ **Open switch (OPEN ▶)**
⓰ **CD release button (PUSH)**
⓱ **Video format selector (NTSC, PAL)**
⓲ **DC IN jack (DC IN 4.5 V ⟐⊖⟐)**

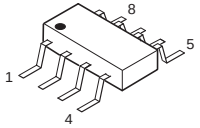
Remote control B

⓳ **On screen display button (OSD)**
⓴ **Repeat button (↻)**
㉑ **Multi screen button (MULTI SCREEN)**
㉒ **Scene button (SCENE)**
㉓ **Numeric buttons**
㉔ **Stop button (■)**
㉕ **Frame skip button (❚▶)**
㉖ **Search buttons (◀◀, ▶▶)**
㉗ **VCD index button (V-INDEX, ⌟, ⌞)**
㉘ **SL-VP48** **Microphone volume control button (MIC)/Echo button (ECHO)**
㉙ **Program button (PROGRAM)**
㉚ **A–B repeat button (A–B)**
㉛ **Recall button (RECALL)**
㉜ **Time access button (TIME ACCESS)**
㉝ **Clear button (CLEAR)**
㉞ **Select button (▶SELECT)**
㉟ **Pause button (❚❚)**
㊱ **Previous, next buttons (⏮ PREV, NEXT ⏭)**
㊲ **Return button (↶)**
㊳ **Voice mode button**
SL-VP43 **SL-VP33** **(MONO L/R)**
SL-VP48 **(KARAOKE/DUAL)**
㊴ **SL-VP48** **Key control buttons (♭, ♯)**

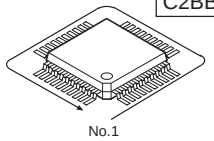
AN8746SA-E1	32PIN	C0ABBB000105	8PIN
AN8839NSB-E1	28PIN	C0ABBB000081	14PIN
LH5V2RN0	32PIN	C1BB00000367	16PIN
NJU7082BVAE1	8PIN	C0DBCAE00002	8PIN
RS10003E2	40PIN		



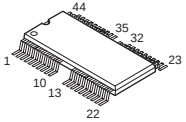
TC7WU04FUT2L
TC7W14FUTE1L



M662782RPT1	80PIN
MN89103M2	128PIN
C2BBGE000434	100PIN



LC32V4260TLM



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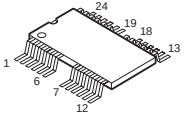

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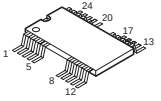

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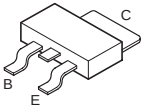
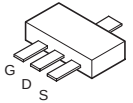
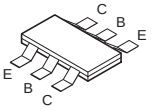
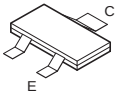


XP161A1265PR



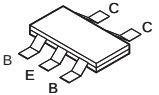
B1GKCFEL0001



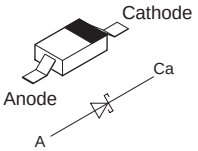


2SD1328TX
MSB709RST1
UNR511700L
B1GDCFJN0011
B1GBCFJJ0007

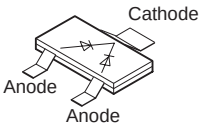
B1GFCFJA0006
FMW1T98
XN0111500L



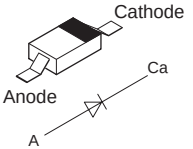
MA2J70400L



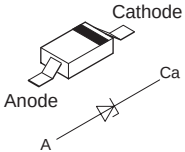
M1MA141WKT1



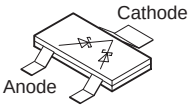
MA2J11100L



MAZ80510ML



MA3J741E0L

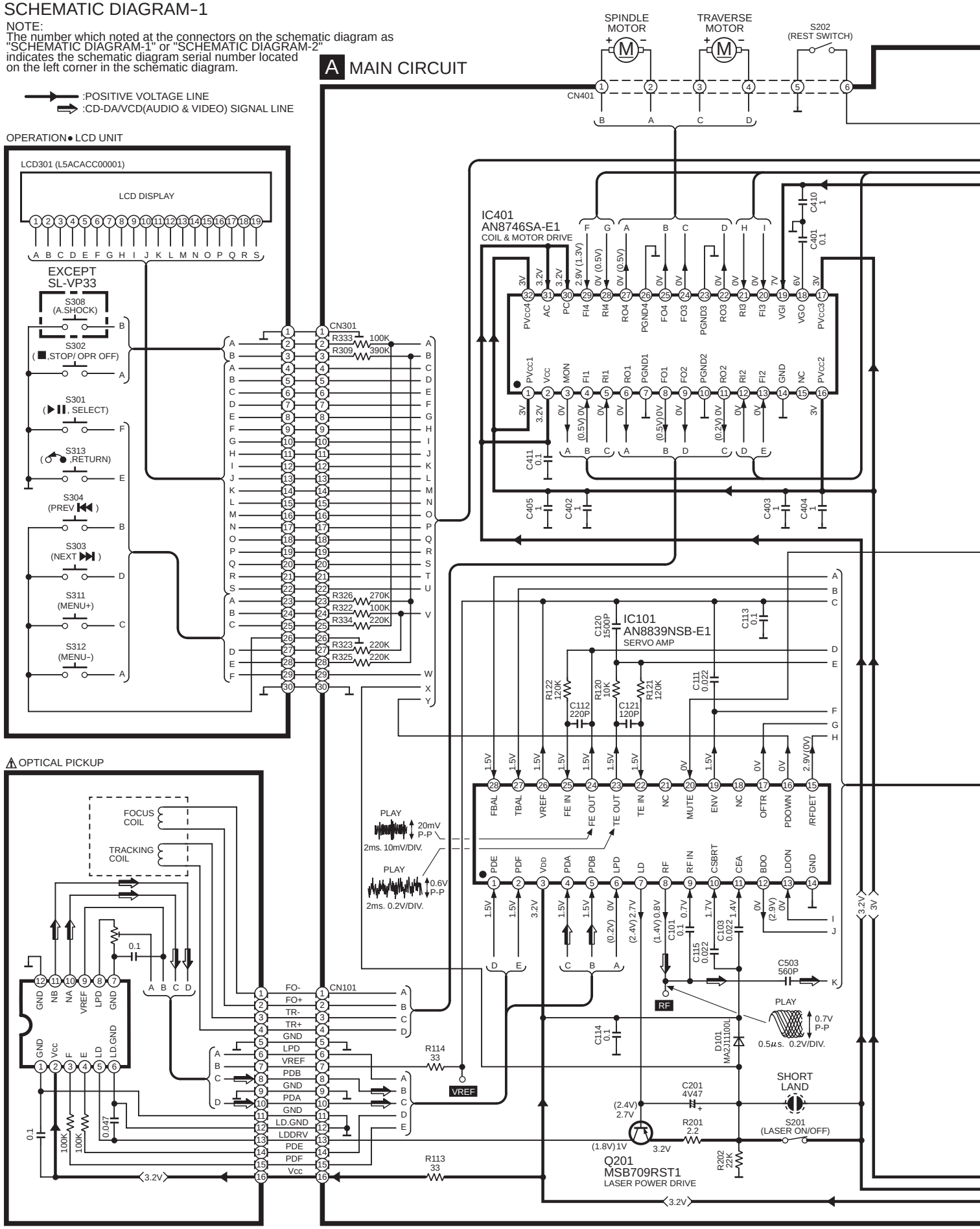


SCHEMATIC DIAGRAM–1

NOTE:
The number which noted at the connectors on the schematic diagram as "SCHEMATIC DIAGRAM-1" or "SCHEMATIC DIAGRAM-2" indicates the schematic diagram serial number located on the left corner in the schematic diagram.

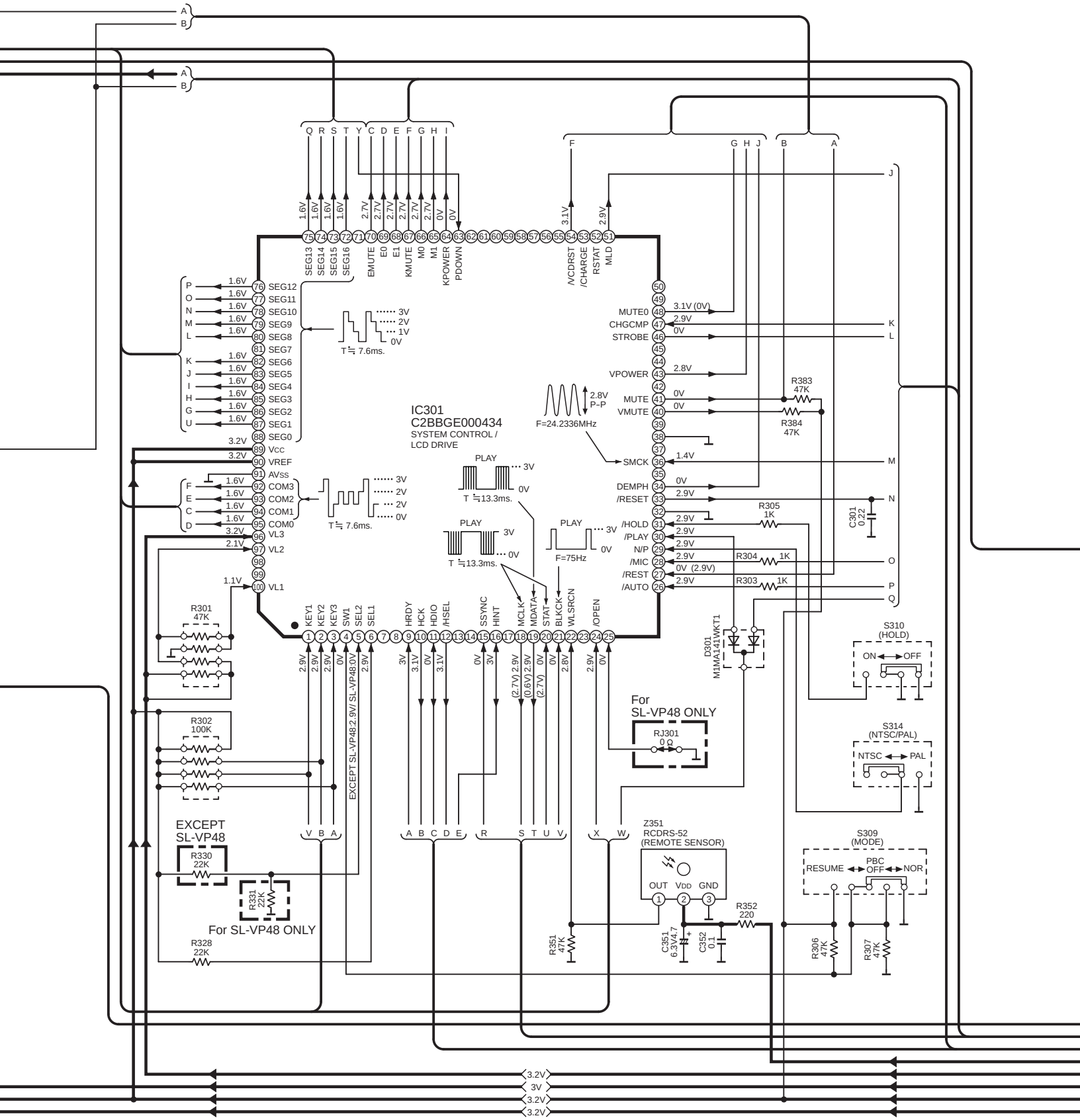
:POSITIVE VOLTAGE LINE
:CD-DA/VCD(AUDIO & VIDEO) SIGNAL LINE

A MAIN CIRCUIT



SCHEMATIC DIAGRAM–2

:POSITIVE VOLTAGE LINE



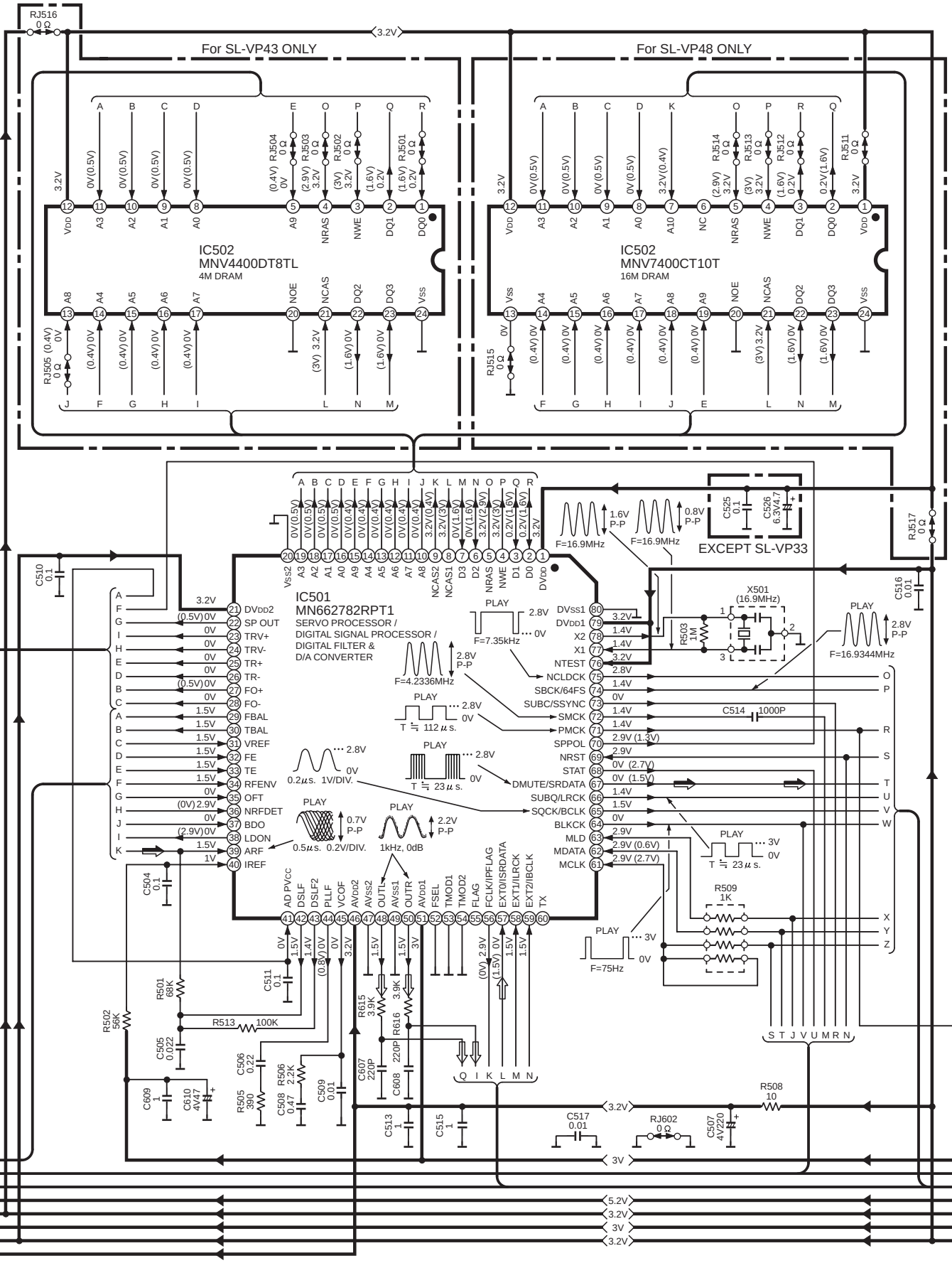
SCHEMATIC DIAGRAM–3

A MAIN CIRCUIT

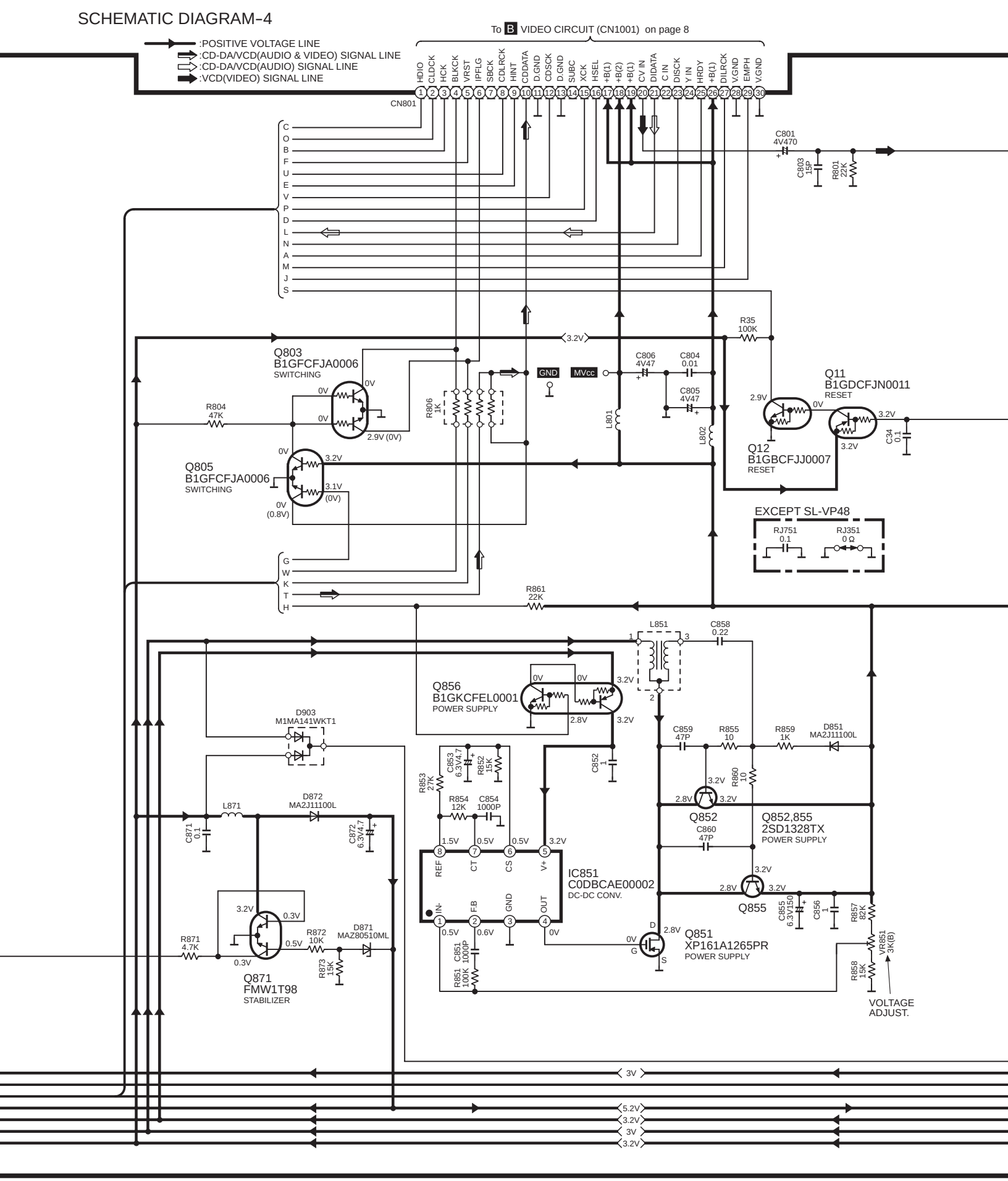
:POSITIVE VOLTAGE LINE

:CD-DA/VCD(AUDIO & VIDEO) SIGNAL LINE

:CD-DA/VCD(AUDIO) SIGNAL LINE



SCHEMATIC DIAGRAM–4



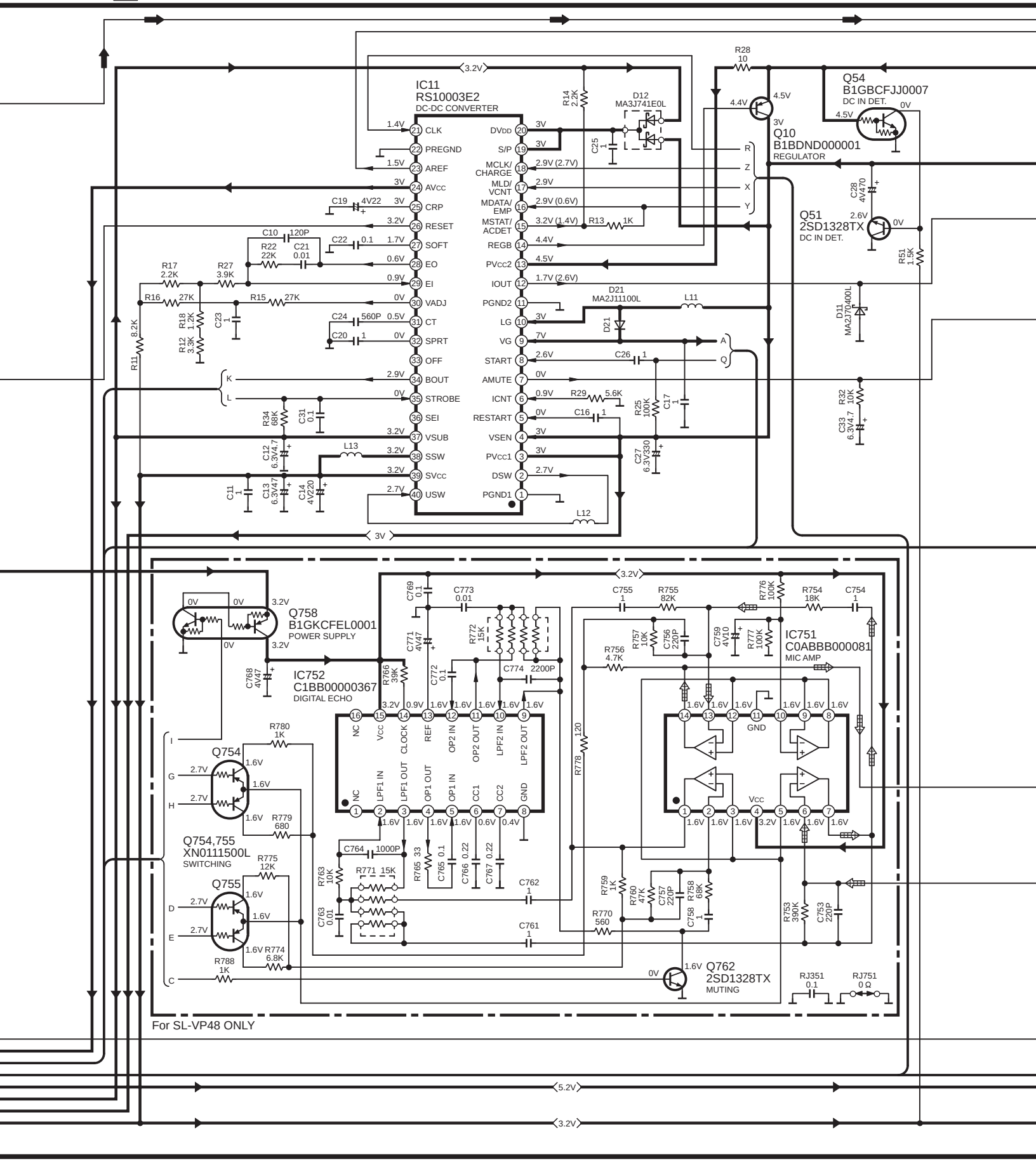
SCHEMATIC DIAGRAM–5

A MAIN CIRCUIT

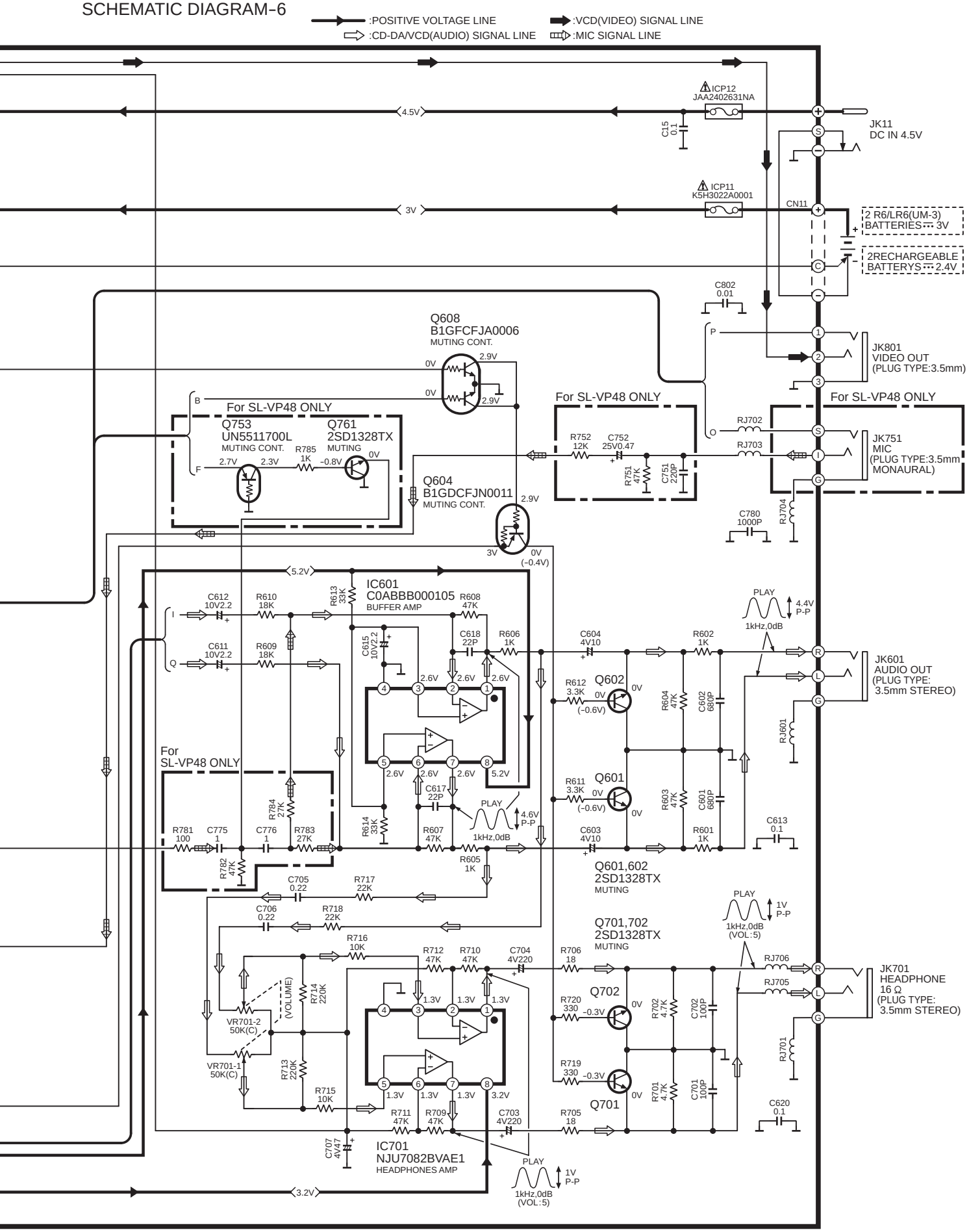
:POSITIVE VOLTAGE LINE

:VCD(VIDEO) SIGNAL LINE

:MIC SIGNAL LINE



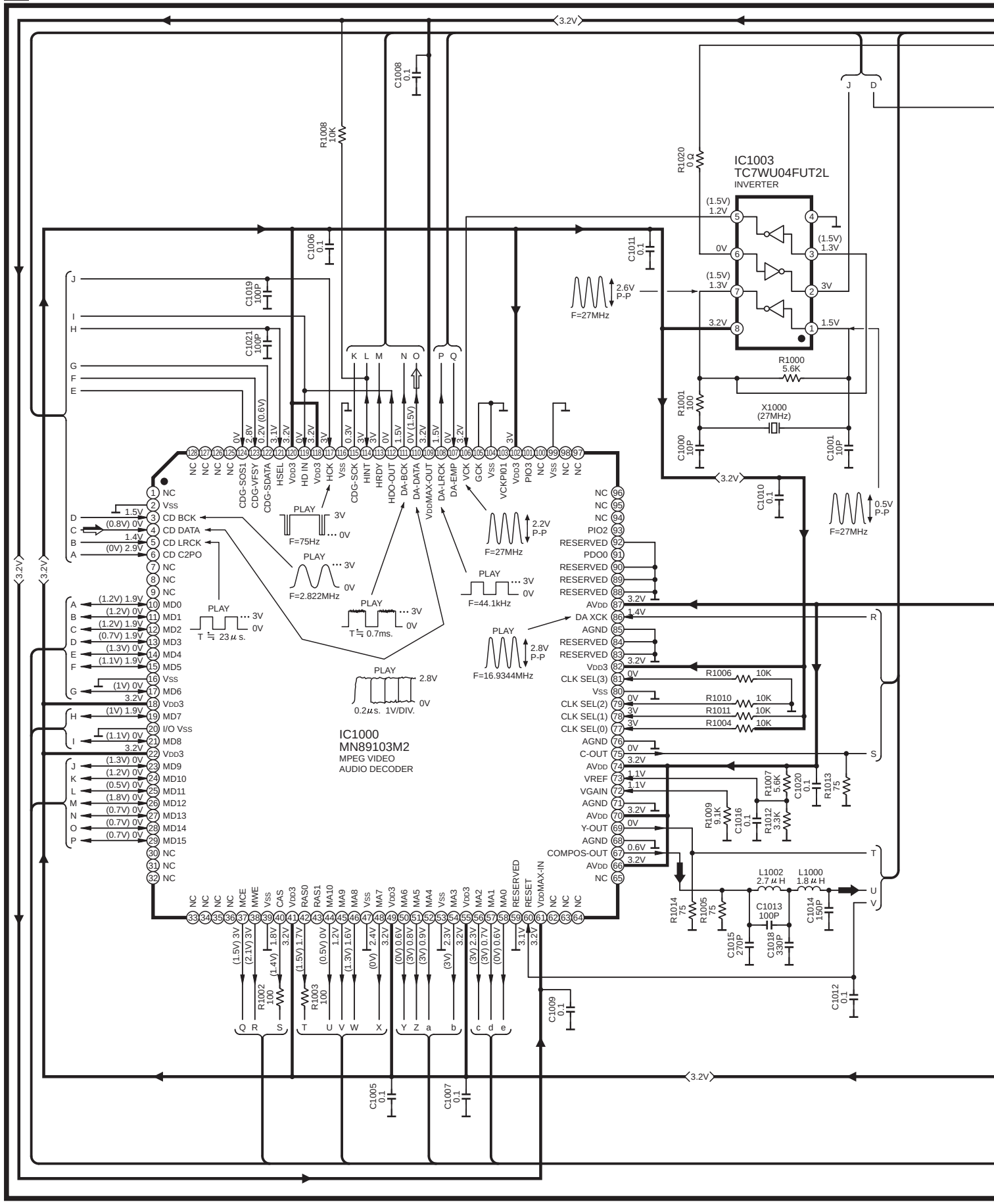
SCHEMATIC DIAGRAM–6



SCHEMATIC DIAGRAM–7

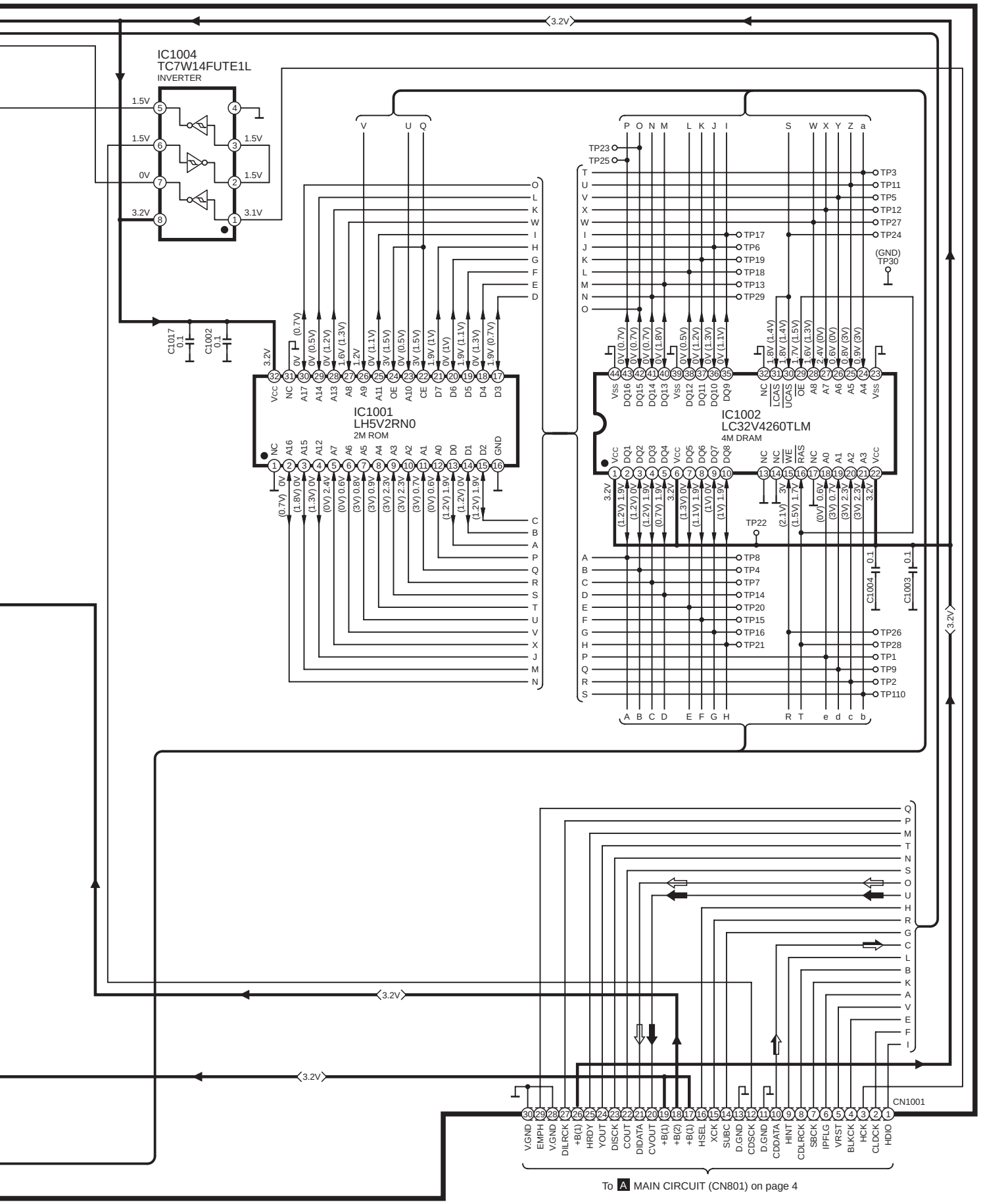
B VIDEO CIRCUIT

: POSITIVE VOLTAGE LINE
: CD-DA/VCD (AUDIO & VIDEO) SIGNAL LINE
: CD-DA/VCD (AUDIO) SIGNAL LINE
: VCD(VIDEO) SIGNAL LINE



SCHEMATIC DIAGRAM–8

: POSITIVE VOLTAGE LINE
: CD-DA/VCD (AUDIO & VIDEO) SIGNAL LINE
: CD-DA/VCD (AUDIO) SIGNAL LINE
: VCD(VIDEO) SIGNAL LINE



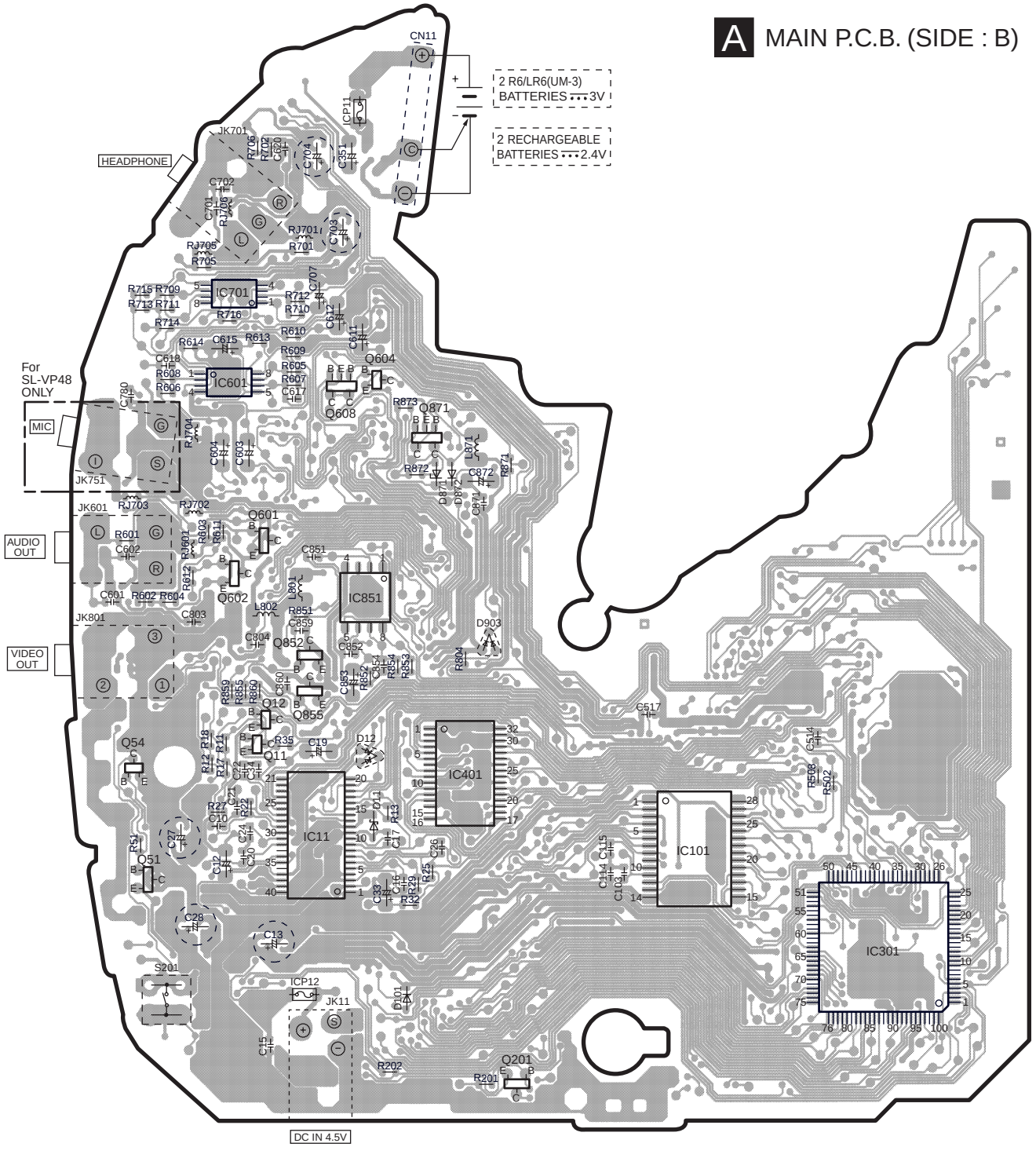
To A MAIN CIRCUIT (CN801) on page 4

Note: This printed circuit board diagram may be modified at any time with the development of new technology.

A MAIN P.C.B. (SIDE : A)

G H I J K L

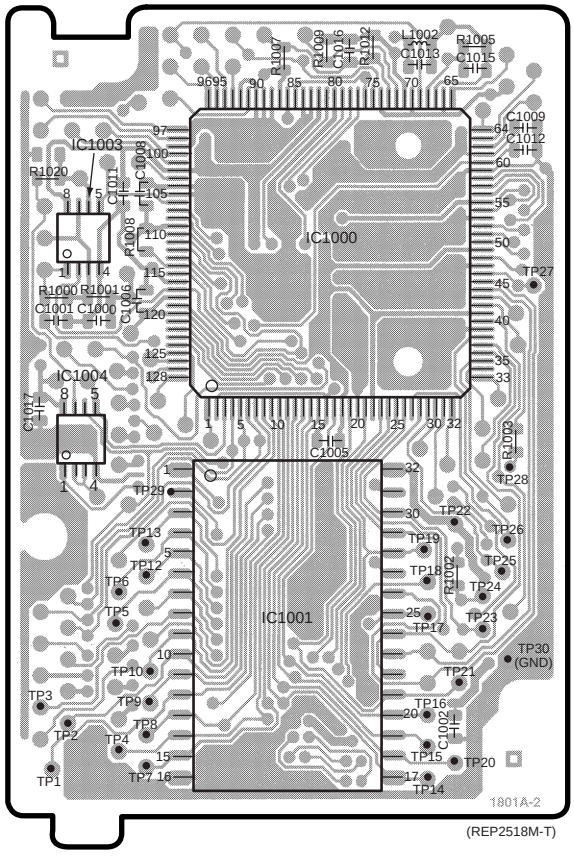
A MAIN P.C.B. (SIDE : B)



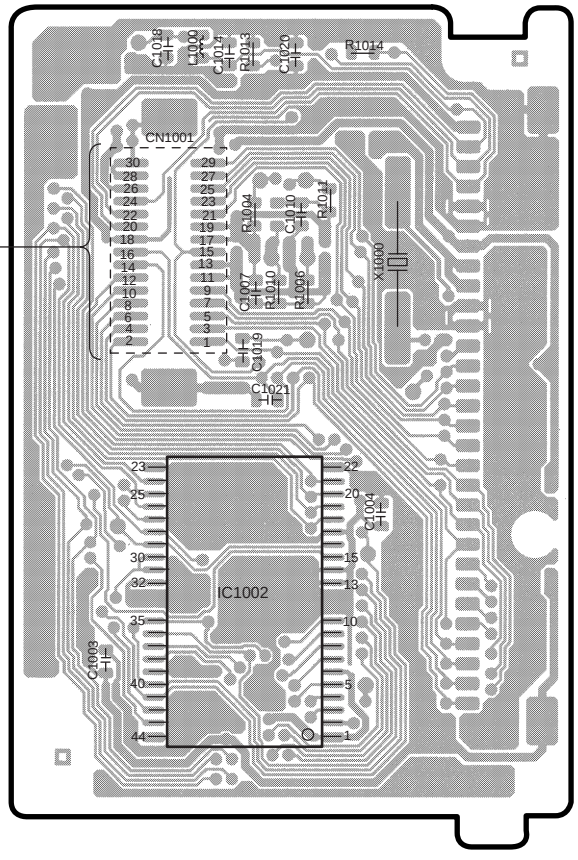
■ ELECTRICAL PARTS LOCATION

Ref. No.	Lo. No.	Ref. No.	Lo. No.	Ref. No.	Lo. No.	Ref. No.	Lo. No.	Ref. No.	Lo. No.
A MAIN P.C.B. (SIDE:A)									
IC501	5B	RJ504	5B	R384	6B	R788	4D	C607	6C
IC502	5A	RJ505	6A	R501	6B	R801	4E	C608	6C
IC751	4E	RJ511	5A	R503	5B	R806	5B	C609	5C
IC752	4D	RJ512	5A	R505	6C	R857	5E	C610	5C
Q10	7E	RJ513	5A	R506	6C	R858	5E	C613	4F
Q701	3E	RJ514	5A	R509	4A	R861	5D	C705	3E
Q702	3E	RJ515	6B	R513	6C	C11	6E	C706	3E
Q753	3E	RJ516	6A	R615	6C	C14	6E	C751	4E
Q754	3E	RJ517	6A	R616	5C	C23	6E	C752	4E
Q755	3D	RJ602	5C	R717	3E	C25	5E	C753	4E
Q758	3E	RJ751	4D	R718	3E	C31	7E	C754	4E
Q761	3E	R14	5D	R719	3E	C101	6C	C755	3E
Q762	4D	R15	6E	R720	3D	C111	6B	C756	3E
Q803	4B	R16	6E	R751	4F	C112	6B	C757	3E
Q805	4B	R28	6E	R752	4E	C113	6C	C758	3E
Q851	5D	R34	7E	R753	4E	C120	6B	C759	4E
Q856	5D	R113	6C	R754	3E	C121	6B	C761	3D
D21	5D	R114	5C	R755	3E	C201	7C	C762	3D
D301	6A	R120	6B	R756	3E	C301	6A	C763	3D
D851	5E	R121	6B	R757	3E	C352	2E	C764	4D
VR701-1	3F	R122	6B	R758	3E	C401	5D	C765	4D
VR701-2	3F	R301	6A	R759	3E	C402	5D	C766	4D
VR851	5E	R302	7A	R760	3E	C403	5D	C767	4D
L11	6E	R303	6A	R763	3D	C404	5D	C768	3D
L12	6E	R304	6A	R765	4D	C405	5D	C769	3D
L13	6E	R305	6F	R766	3D	C410	5D	C771	3D
L851	5E	R306	5F	R770	4D	C411	5D	C772	4D
Z351	1E	R307	6F	R771	3D	C503	6C	C773	4D
X501	5B	R309	7B	R772	4D	C504	6B	C774	4D
S309	5F	R322	7B	R774	3E	C505	6B	C775	3D
S310	6F	R323	7B	R775	3E	C506	6C	C776	3D
S314	7C	R325	7B	R776	4E	C507	7D	C801	5E
CN101	6D	R326	7B	R777	3E	C508	6C	C802	4F
CN301	7D	R328	6A	R778	3E	C509	6C	C805	4E
CN401	5E	R330	7A	R779	3E	C510	6B	C806	5D
CN801	4E	R331	6A	R780	3E	C511	6C	C855	5E
RJ301	6A	R333	7C	R781	3D	C513	6C	C856	5E
RJ351	3D	R334	7B	R782	3D	C515	6C	C858	5E
RJ501	5A	R351	2E	R783	3E	C516	5B		
RJ502	5A	R352	2E	R784	3D	C525	5A		
RJ503	5A	R383	6B	R785	3E	C526	6A		
A MAIN P.C.B.(SIDE:B)									
IC11	6H	L871	3I	R502	5K	R851	4H	C351	2H
IC101	6J	S201	7G	R508	5K	R852	5I	C514	5K
IC301	6K	CN11	2I	R601	4G	R853	5I	C517	5J
IC401	5I	JK11	7H	R602	4G	R854	5I	C601	4G
IC601	3H	JK601	4G	R603	4H	R855	5H	C602	4G
IC701	3H	JK701	2H	R604	4G	R859	5H	C603	4H
IC851	4I	JK751	3G	R605	3H	R860	5H	C604	4H
Q11	5H	JK801	5G	R606	3G	R871	4I	C611	3H
Q12	5H	RJ601	4H	R607	3H	R872	4I	C612	3H
Q51	6G	RJ701	2H	R608	3G	R873	3I	C615	3H
Q54	5G	RJ702	4H	R609	3H	C10	6H	C617	3H
Q201	7I	RJ703	4G	R610	3H	C12	6H	C618	3G
Q601	4H	RJ704	3H	R611	4H	C13	6H	C620	2H
Q602	4H	RJ705	2H	R612	4H	C15	7H	C701	2H
Q604	3I	RJ706	2H	R613	3H	C16	6I	C702	2H
Q608	3H	R11	5H	R614	3H	C17	6I	C703	2H
Q852	5H	R12	5H	R701	2H	C19	5H	C704	2H
Q855	5H	R13	6I	R702	2H	C20	6H	C707	3H
Q871	3I	R17	5H	R705	2H	C21	6H	C780	3G
D11	6I	R18	5H	R706	2H	C22	5H	C803	4H
D12	5I	R22	6H	R709	3G	C24	6H	C804	5H
D101	7I	R25	6I	R710	3H	C26	6I	C851	4H
D871	4I	R27	6H	R711	3G	C27	6G	C852	5H
D872	4I	R29	6I	R712	3H	C28	6H	C853	5H
D903	5I	R32	6I	R713	3G	C33	6I	C854	5I
ICP11	2H	R35	5H	R714	3G	C34	5H	C859	5H
ICP12	7H	R51	6G	R715	3G	C103	6J	C860	5H
L801	4H	R201	7I	R716	3H	C114	6J	C871	4I
L802	4H	R202	7I	R804	5I	C115	6J	C872	4I

B VIDEO P.C.B.(SIDE : A)



B VIDEO P.C.B.(SIDE : B)



To A MAIN P.C.B.(CN801)

■ELECTRICAL PARTS LOCATION

Ref. No.	Lo. No.	Ref. No.	Lo. No.	Ref. No.	Lo. No.	Ref. No.	Lo. No.
B VIDEO P.C.B.							
IC1000	2B	TP12	4A	R1000	3A	C1003	4D
IC1001	4B	TP13	4A	R1001	3A	C1004	4F
IC1002	4E	TP14	5C	R1002	4C	C1005	3B
IC1003	2A	TP15	5C	R1003	3C	C1006	3A
IC1004	3A	TP16	4C	R1004	2E	C1007	3E
L1000	1E	TP17	4C	R1005	1C	C1008	2A
L1002	1C	TP18	4C	R1006	3E	C1009	2C
X1001	2F	TP19	4C	R1007	2B	C1010	2E
CN1001	2E	TP20	5C	R1008	2A	C1011	2A
TP1	5A	TP21	4C	R1009	2B	C1012	2C
TP2	5A	TP22	4C	R1010	3E	C1013	2C
TP3	4A	TP23	4C	R1011	2E	C1014	2E
TP4	5A	TP24	4C	R1012	1B	C1015	2C
TP5	4A	TP25	4C	R1013	2E	C1016	2B
TP6	4A	TP26	4C	R1014	2E	C1017	3A
TP7	5A	TP27	3C	R1020	2A	C1018	1E
TP8	5A	TP28	3C	C1000	3A	C1019	3E
TP9	4A	TP29	3A	C1001	3A	C1020	2E
TP10	4A	TP30	4C	C1002	5C	C1021	3E